

# SD Times

SOFTWARE DEVELOPMENT

The Industry Newspaper for Software Development Managers

APRIL 1, 2005

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## Not So Patently Clear

IBM, Sun code donations approach  
'open source' from different directions

BY JENNIFER DEJONG

If a developer builds an application based in part on open-source software, will lawyers come knocking at the door?

The simple answer, from one major vendor at least, is no. "We wanted to end any hesitation about whether IBM can show up with its attorney," said IBM's Bob Sutor, referring to the 500 software patents that the company made available to a "patent commons" in January for use in open-source projects.

"The pledge is applicable to any individual, community, or company working on or using software that meets the Open

► continued on page 22



IBM's donation of patents won't result in a visit from its lawyers, says Sutor.

## IBM to Integrate Ascential for \$1.1 Billion

BY DAVID RUBINSTEIN

Four years after it paid US\$1 billion for the Informix and Cloudscape databases, IBM last month reached into its deep pockets for another \$1.1 billion, this time to acquire Ascential Software—the data management piece that Informix left behind. The deal is subject to shareholder and regulatory approval and is expected to close in the second quarter of this year.

All told, IBM now has ponied up more than \$2 billion for what in 2001 was one company with revenues of about \$800 million, and after having merged pieces of Informix into DB2 and releas-

ing Cloudscape as open source. Ascential's revenue for its 2004 fiscal year was \$271.9 million, up 46 percent over 2003, the company said.

Ascential also was sitting on about a half-billion in cash, much still left over from the earlier IBM purchase of the Informix products. "The opportunity to join IBM becomes a prominent part of the consideration about what are the trade-offs to make, particularly in the interest of the shareholders," said Ascential chairman and CEO Peter Gyenes, discussing the paths for growing the company during a conference call last month.

"Information integration is an important enabler of an on-demand business strategy," said IBM Software Group executive Steve Mills. IBM already has WebSphere Information Integrator, but the company said Ascential's data integration capability will complement the

## Sun Seeks Wider Base For EJB 3.0

BY YVONNE L. LEE

The Java Community Process has an eye toward Microsoft's Visual Basic as it looks to simplify Enterprise JavaBeans, which have been decried as too difficult to use.

"We're trying to get to the people who are writing the kinds of apps that we think of as corporate applications," said Bill Shannon, specification lead for the J2EE platform, which will include EJB 3.0. "[These applications are] somewhat smaller scale; they may be written by a single person rather than a team," he said. "We're dipping into the area that Visual Basic is extremely strong in."

The group is trying to make working with EJBs easier, and to make Java programming easier overall, because it sees more potential developers, particularly among those programming with Visual Basic and Microsoft's .NET Framework, said Shannon, who estimated that

the current pool of Java programmers is in the tens of thousands, but that the potential pool is in the millions.

The simplification effort has two main thrusts, according to Shannon: reducing the steps needed to deploy a project, and making the data mapping easier. The specification also will feature numerous other smaller revisions, he said.

Rather than requiring developers to write deployment descriptors, the new version makes it possible to describe the server environment using Java language annotations, which are part of J2SE 5, he said. This makes it possible for smaller teams and even individuals to develop and deploy J2EE applications, he said.

The other main difference is that EJB 3.0 will use an object-based persistence model, rather than a more complex container-based persistence model. The

► continued on page 18

WebSphere solution. The company gave an example of a customer using WebSphere Information Integrator to manage and access data that's located in multiple sources in real time, and then using Ascential's software to integrate the data.

IBM will set up Ascential as a business unit within the Software Group's Information Management division, to be run by Ascential president Pete Fiore, according to Gyenes.

"IBM has been focused on an area referred to as enterprise information integration, which is really about real-time access to data, and it's very complemen-

tary to us, which is about data movement and data transformation," he said in the call.

Ascential's imminent delivery of "Hawk," a major upgrade of its products, was proceeding toward a second-quarter beta release, but that now will be reconsidered while integrations with IBM are worked out, Fiore said.

In the conference call, Gyenes would not say whether IBM approached Ascential, or whether there were other bidders. He noted that IBM accounts for between 10 percent and 15 percent of Ascential's licensing revenue. ■

### SPECIAL REPORT

Balancing The  
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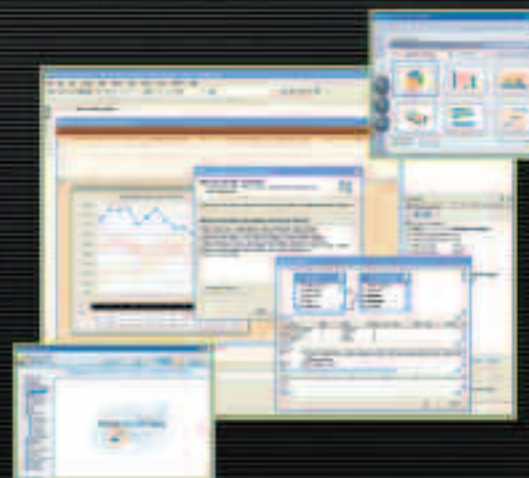
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# Quality Is Hot, H1-B Visas Are Not

## Wide-ranging survey reveals key issues for development managers

BY ALAN ZEICHICK

If you ask software development managers what they're thinking about, you're likely to hear something like "testing and quality assurance." At least, that's what we heard when we asked SD Times readers in a recent poll what were the issues on the top of their minds.

The most popular responses were testing and quality assurance, from 52.8 percent of respondents, component development/code reuse (47.0 percent), modeling and design (45.5 percent) and collaboration and team development (42.6 percent).

By contrast, the least popular response was on the issue of managing hiring with H-1B visas (1.5 percent). An H-1B visa is a U.S. temporary work permit given to a non-U.S. citizen with special expertise, upon sponsorship by a U.S. company.

Other low-scoring topics included the Linux/SCO lawsuits (3.1 percent), indemnification from litigation (4.0 percent) and domestic outsourcing (6.8 percent). Offshoring development was slightly more popular, with 12.4 percent of readers stating that this was a top-of-mind topic.

But even though litigation didn't rank high on the scale, it was of significant importance to some respondents. "Even though this might look like a nonrelated issue to software development it actually is," wrote Paresh Yadav, CTO of Saint Technologies. "Litigations by corporate bullies in IT industry to stall innovation using unfair methods, mainly frivolous litigations. I am not against patent or copyright for real hard research work but sometimes we all know patents are granted for a very basic idea and proposed methods."

Gordon McKeown, technical director at Facilita, agreed. "Software patents are a ligature around the throat of small companies," he wrote.

Other top topics included application life-cycle management (41.3 percent), system and software security (38.0 percent), agile development (36.9 percent) and business process management (33.8 percent). Clearly less important were themes such as developing 64-bit applications

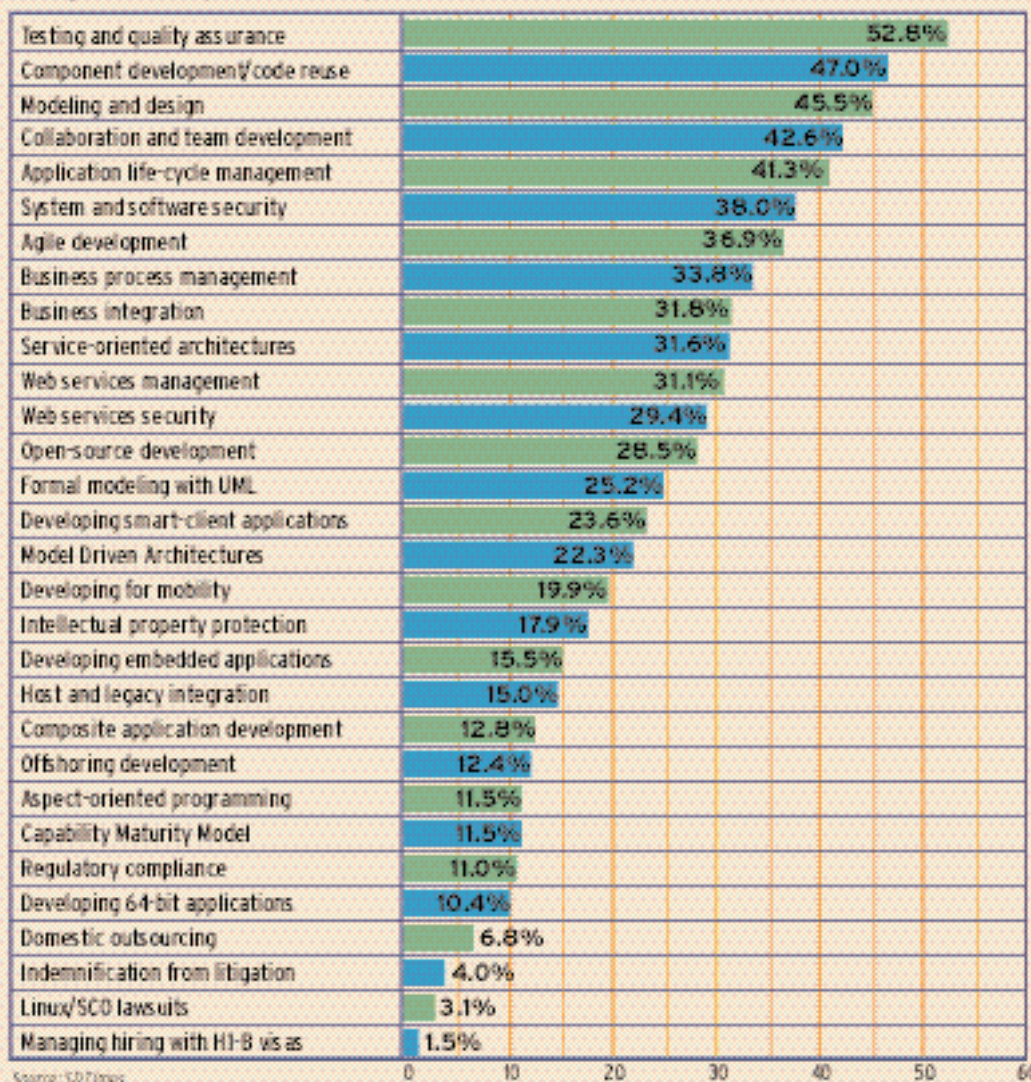
(10.4 percent), regulatory compliance (11.0 percent), aspect-oriented programming (11.5 percent) and moving up the Capability Maturity Model scale (11.5 percent).

Open-source development, at 28.5 percent, ranked toward the middle of the scale—but that doesn't mean that it was popular. "A lot of the press seems to get overly excited about open source vs. proprietary development," admonished Doug Stein, vice president of development and technology at Learning.com. "Precious little is focused on what's best for the customer and what rewards the shareholder. Too much seems to be the geek equivalent of the silverback males pounding their chests."

Another topic that was in the middle of the responses is the current buzzphrase, service-oriented architectures (31.6 percent). "SOA is high on our agenda, and developing an appropriate enterprise service bus is proving more challenging than first thought," wrote Robert Leidl, chief technology officer at Powerlan.

The SD Times readership issues survey was conducted in late February, and had 453 respondents. The statistical accuracy of this research is 3 percentage points. ■

Which of the following items would you define as 'top of mind' for you and your enterprise development team?

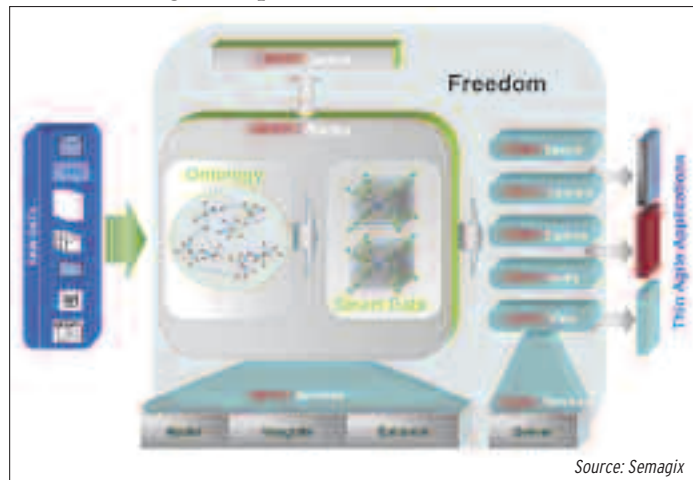


## Apps Make Semantic Web a Reality

BY YVONNE L. LEE

SAN FRANCISCO — The Semantic Web has moved from a theoretical construct to its initial uses in building systems that ensure legal compliance,

track terrorists, create smarter movie-search applications and integrate corporate IT, according to attendees at the Semantic Technology Conference held here in March.



Semagix's Freedom includes a repository for data and ontologies, a processing engine and presentation services.

The market for semantic technologies will grow at a compound annual growth rate of between 60 percent and 70 percent until 2010, when it will grow from its current size of US\$2 billion to \$63 billion, according to TopQuadrant, a consulting firm that specializes in Semantic Web technologies.

New tools are coming not with fancy names reflecting the World Wide Web Consortium's next great vision, but as an evolution of current Web services and database technology, said Eric Miller, the W3C's Semantic Web activity lead. The current Web is an extension of tools such as gopher and ftp that existed in the early 1990s, he asserted. These tools linked files together but did not reveal anything about the text inside

the files. The current Web links documents and can be searched according to the text inside the files, but doesn't reveal context of the text, he said. The Semantic Web takes that next step.

Existing applications that will add Semantic Web capabilities include Adobe's Extensible Metadata Platform (XMP) and Oracle's database. XMP is an open-source package available now for tagging information. It adheres to the W3C's Resource Description Framework (RDF), which is one of the pillars of the Semantic Web. The other two are the Web Ontology Language (OWL) and XML.

RDF is a metadata model for describing objects and the relationships among them. OWL is a markup language for

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# Piccolo Parser Pipes in to Push XMLBeans' Pace

BY YVONNE L. LEE

Piccolo is going to make the next version of Apache's XMLBeans run about twice as fast as the prior version, according to Apache Software Foundation's vice president for the XML-

Beans project, Cliff Schmidt.

XMLBeans is Apache's software for binding XML and XML schemas and mapping them to the equivalent Java code and types.

The open-source software

went into beta test in early March and will be released to general availability at the end of this month, said Schmidt.

When BEA submitted XMLBeans to the Foundation in July 2003, it had to decouple

the Piccolo parser from the rest of the project because Piccolo was a separate work.

The parser was written by Yuval Oren, and at that time, it used the Lesser GNU Public License, which is incompatible

with the Apache License. It has since been relicensed under a more Apache-friendly license.

Another speed enhancement is that XMLBeans 2.0 has a cache that stores used XML data in memory for faster access.

The XMLBeans software now includes features of J2EE 5, including support for generics and the Java Community Process' JSR 173, the streaming API for XML.

"It's just another way to access data in XML," said Schmidt regarding JSR 173. ■

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## Adeptia Revs BPM Server

BY JENNIFER DEJONG

Adding to the buzz in the busy BPM market, Adeptia has ushered in version 4.0 of its business process management server with new features that ease data linking and report creation for developers, and add support for document management and clustered servers, said Adeptia's CTO Deepak Singh.

New integration capabilities automate the process of pulling data from multiple sources in order to create, for example, a single view of all business transactions that have taken place with a particular customer. "It takes minutes to build instead of days," said Singh. The previous version let developers attach documents to a process flow, but not manage or archive them. The ability to do so is crucial in industries such as insurance, where multiple documents, such as a photo of a damaged car or a scanned image of an accident report, accompany claims.

Boston-based research firm Aberdeen Group expects worldwide spending in BPM to increase to US\$6.32 billion by 2005, from \$2.26 billion during 2001. Adeptia BPM Server costs about US\$40,000 for a typical installation.

Support for clustered servers lets BPM Server users manage load balancing and backup, and add more users and data to a system. And an enhanced reporting engine automatically generates XML code, allowing developers to build reports—such as a dashboard that depicts how many claims are being processed—faster. "Report requests are constantly changing," said Singh. "You could [create them] by hand, but it's tedious." ■



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# New Life for Old COBOL Applications

CA's new service fixes code before converting it to J2EE, .NET or Web services

BY JENNIFER DEJONG

When it comes to managing COBOL applications, getting at the mainframe data and inte-

grating it with more modern code are not the only challenge. Sometimes the code itself is in need of repair.

COBOL has a rich and very long history, said Michael Amundsen, director of product management at Computer

Associates International. "Some apps have been around for literally decades and are not as well structured as we would like."

According to Tactical Strategy Group, a management consulting company in Soquel, Calif., 75 percent of the world's business data is still processed in COBOL.

To that end, the company last month announced Legacy Renewal Solution, a service offering that converts legacy COBOL applications to J2EE, .NET and Web services, without having to rewrite the source code. While much of that process can be automated, Amundsen said some aspects of it require human intervention.

"There is always something interesting in COBOL, something that is a bit cryptic." A typical problem is spaghetti code, the result of multiple quick fixes, made by many different developers over the years. In this case, the solution is refactoring, which improves source code structure and performance, and also makes code easier to maintain. Once such problems are fixed, Legacy Renewal, which starts at US\$100,000, automatically translates COBOL code into J2EE, .NET or Web services, using CA's AllFusion Gen, Amundsen said. ■

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## Autumn In New York: Time for Testing

BY ALAN ZEICHICK

The second annual Software Test & Performance Conference will be held Nov. 1-3, 2005, at the Roosevelt Hotel in New York City.

STPCon is an independent event for software development and test/QA professionals and managers, and is produced by BZ Media, publisher of SD Times and of Software Test & Performance magazine.

The format of the forthcoming event will be similar to that of last year's debut conference, held in December in Baltimore: one full day of tutorials, followed by two days of classroom sessions. STPCon is soliciting proposals for speakers for the technical program; the deadline for submissions is May 2. More information can be found at [www.stpcon.com](http://www.stpcon.com). ■



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# How-To Advice Comes to Team System

BY JENNIFER DEJONG

How-to advice on agile and other software methodologies is hardly in short supply. But because much of that advice resides in books that sit on a developer's shelf, implementing

it isn't always practical, said Microsoft's Prashant Sridharan, senior product manager for Visual Studio Team System.

To that end, Microsoft last month announced plans to add two process guidance templates

to Team System, expected this summer. One is the Microsoft Solutions Framework (MSF) for Capability Maturity Model Integration (CMMI) Process Improvement; the other is MSF for Agile Software Development.

Both are designed to help managers enforce the policies that govern a company's software life-cycle development process. Policies include directives such as "no check-in before code has passed static

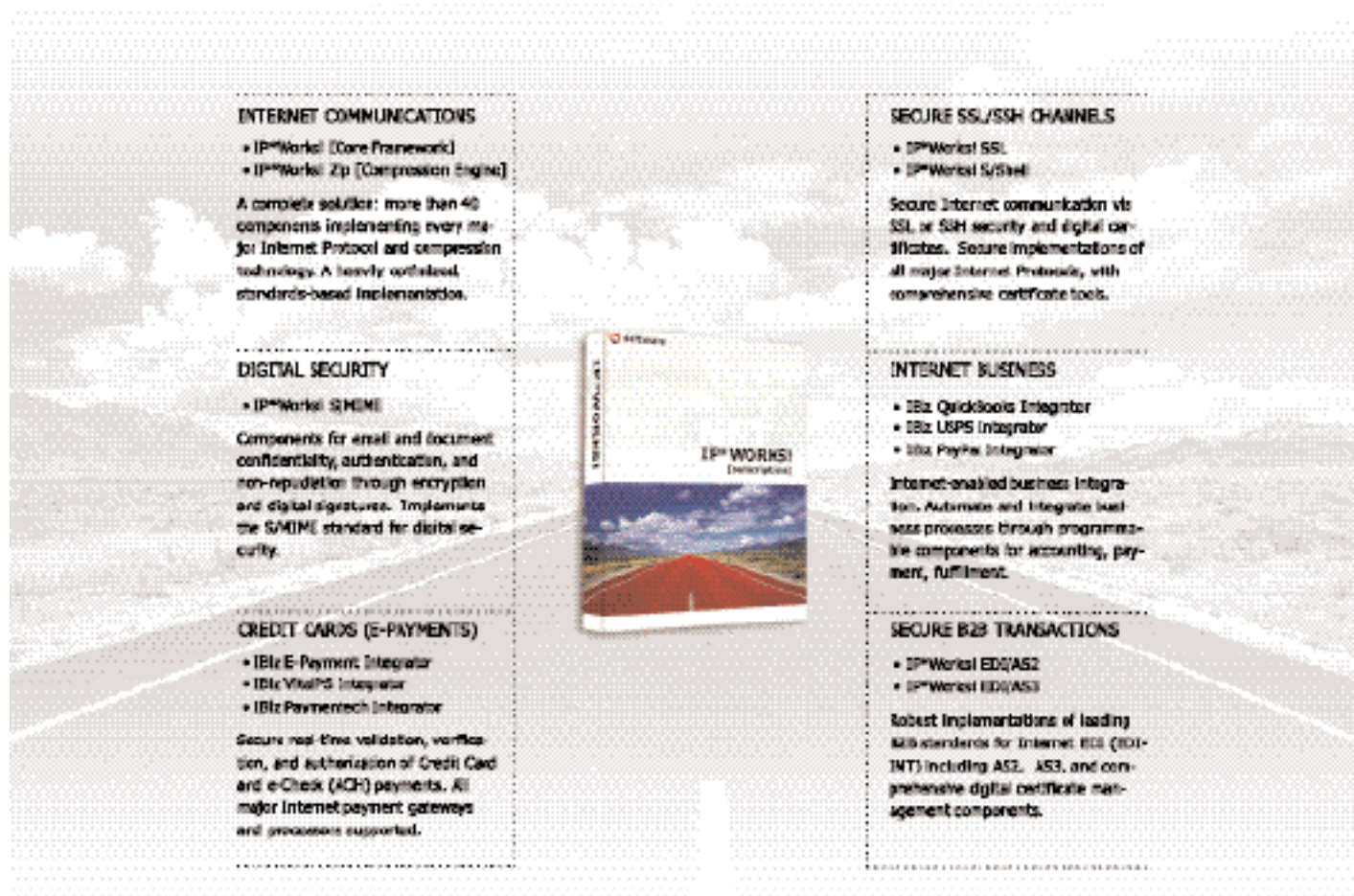
code analysis," or "no deployment before code has passed security analysis," according to Sridharan. Because the software itself enforces such policies, managers are assured that rules are being adhered to.

MSF for Agile is based on many of Microsoft's internal development processes, Sridharan said, and is simpler and more lightweight than CMMI, which implements policies for code reviews, unit testing, static code analysis, security testing and more. MSF Agile simply stipulates that all code check-ins must be associated with a work item. ■

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## SONIC ADDS B-TO-B TO ESB

BY EDWARD J. CORREIA

With two major extensions to its enterprise service bus (ESB) solution released in early March, Sonic Software claims developers can now point and click their way to building business-to-business integrations and incorporating relational data sources in their XML-based service-oriented architectures.

New in Sonic ESB 6.1 is Collaboration Server, which according to Jon Bachman, Sonic's senior director of product marketing, abstracts partner-specific code and permits developers to configure integrations between internal processes and outside partners. Partner-side systems must be exposed either as Web services, or with ebXML or RosettaNet, he added.

Also new is the Database Service, which he said simplifies the integration of relational data sources into the service-oriented architecture. The tool incorporates database drivers from DataDirect for IBM's DB2 and Informix, Microsoft's SQL Server, Oracle, Sybase's Adaptive Server and JDBC.

Tying it all together are new diagramming and editing tools in Sonic Workbench, which Bachman said permit drag-and-drop construction of database queries that he said can be easily integrated with Sonic ESB's service model. Collaboration Server costs US\$35,000 per server processor plus the cost of ESB, which is now bundled in Sonic's SOA Suite, that also costs \$35,000. ■



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# Eclipse Gains Local, Interstellar Support

BY I.B. PHOOLEN

APRIL 1 — The Eclipse Foundation has announced 14 new strategic members, encompassing leading IT vendors, major technology consumers and at least one alien race.

Many of the new members will be extending existing Eclipse projects. For example, the Sesame Workshop will lead development of a new cookie-handling format for the Business Intelligence and Reporting Tools project.

"Frankly, we like working with BIRT," smiled Ernie, the affable spokesperson for the Sesame Workshop, "because it reminds us of our friend Bert. Bert likes cookies."

"This open-source project is sponsored by the letters A and F, and the number 5," added Ernie.

Getting involved in the Eclipse Foundation's infrastructure challenges are Plumbers and Steamfitters Local No. 43 and Sheet Metal Workers Local

No. 16. "It takes a lot of plumbing and ducting to make enterprise computing work," said shop steward Fergus McEwan, who will represent the unions on the foundation's board of directors.

McEwan indicated that the two locals will host membership rallies for Eclipse developers. "It's time to bring the power of collective bargaining into the open-source community," he explained, "to improve wages, working conditions and job security."

One new member fits into its own category: Strategic Warrior. According to Commander Klotha, the Klingon Imperial Navy has pledged to preserve the honor of all Eclipse developers, committers and consumers, while also donating source code to support two new projects.

The Eclipse Test and Perfor-

mance Tools for Deployment of Disruptor Based Techniques in Combat, or ETaPTfDoDBTiC, will be used to create open-source frameworks for programming and tuning real-time system controls for high-intensity phased photonic beam emission systems. Meanwhile, the new pIqaD project will seek to port the Eclipse IDE's user interface to become compatible with the Klingonase script and triangular display devices used on distant Qo'noS.

The Imperial fleet also will propose a Stellar Modeling Framework project to be added to the Eclipse Modeling Framework and newly formed Graphical Editing Framework. The SMF would be incubated within the Eclipse Technology Project, and would have many applications in sixth-dimensional cartography, tachyon flux computation, warp-speed navigation and Organian peace treaty negotiations, said the commander.

"You have good software tools on this planet," praised Klotha. "Kai Eclipse! Qapla!" ■



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'Bert likes cookies,' explains Sesame Workshop's Ernie.

## News Briefs

### NEW PRODUCTS

Green Hills Software announced at ESC in early March that it had selected **TraceEdge** to be the name of a trace enabler it released in February. The US\$2,900 device lets the company's SuperTrace probe perform trace analyses on nontrace-enabled PowerPC processors . . . Dundas Software has released **Dundas Diagram for .NET**, an ASP.NET-based data visualization package. The US\$2,999 server-based component lets developers embed interactive diagramming functions into Web or rich-client apps . . . Build-tool maker Electric Cloud has sponsored the creation of the **GNU Make Standard Library**, designed to be a common set of tools for all users of GNU Make. GMSL can be downloaded from [gmsl.sourceforge.net](http://gmsl.sourceforge.net).

### UPGRADES

JAPISoft has shipped **EditIX 3.0**, an upgrade to its cross-platform XML editor and XSLT debugger. This version contains OASIS XML Catalog management, and is compatible with XPath and XInclude. It also has a mode for handling very large XML documents and a number of other enhancements. The software costs US\$75 for commercial use, \$92 including a year of support . . . Microsoft has shipped an accelerator for **BizTalk Server 2004** that works with **RosettaNet 3.0**. The company also has released Service Pack 2 for **SQL Server 2000 Reporting Services**, which improves compatibility with the SharePoint Portal and lets users print reports from a Web browser . . . MapuSoft Technologies has updated **OS Abstractor**, a set of APIs that let embedded developers create code independent of an underlying operating system. Version 3.2 adds support for Nucleus Plus; it already worked with Linux, Precise/MQX, ThreadX, ITron and VxWorks . . . ILOG has announced **JVIEWS 6.5**,

► continued on page 18

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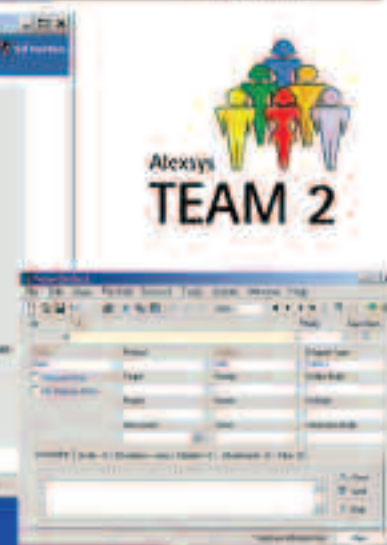
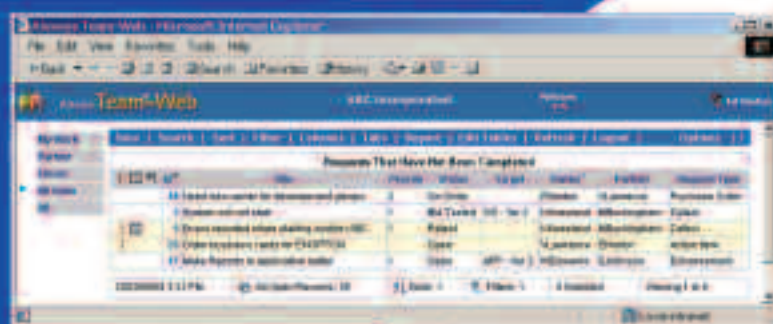
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# SCO Slaps Itself With Lawsuit

New business model should result in gains, losses, confusion

BY I.B. PHOOLEN

APRIL 1 — The SCO Group is preparing to reverse its flagging fortunes by launching a Unix infringement lawsuit

against itself, according to documents obtained by this reporter.

Today's SCO Group consists of the original Caldera Group,

the Unix assets purchased from Novell, and the SCO name bought from The Santa Cruz Operation. Prior to launching its lawsuits against the Linux

community in 2003—hitting companies such as AutoZone, DaimlerChrysler and IBM—Caldera was a major supporter of Linux. Indeed, in 2002 it co-

founded the UnitedLinux consortium with Conectiva, SuSE and TurboLinux to enhance and promote the open-source operating system.

According to confidential documents, Caldera may have inadvertently shared intellectual property it gained after the purchase of Unix with its own open-source developers. If true, that would be a violation of its own Unix license, and as such, would expose the company to legal charges and potentially huge damages.

"It's possible," pondered Ficus McMushroom, senior legal analyst with Guernsey, Jersey, Sark & Alderney. "If SCO's Unix staff exchanged any information with their Linux staff, whether sitting at a conference table, on an internal bulletin board, or even while swilling beers at a bar, Unix license and intellectual property violations may have occurred."

## HAND OVER THE STICKYS

Is there a smoking gun? It's impossible to know until the lawsuit strikes, but according to the secret report, the company is prepared to subpoena extensive documents, including e-mails, voice memos and rainbow-colored Super Sticky Post-it Notes written by SCO honcho Darl McBride.

"We're clearly on unsteady legal ground," observed McMushroom. "If the charges are true, the damages might run into the tens or even hundreds of millions of dollars." Collecting those fees would significantly boost SCO's revenue for 2005, though, as the analyst noted, and could lead to a rise in stock price or dividend payments, as well as yet another round of restated financials.

The revenue from the suit would be offset by legal fees, and may be potentially covered by SCO's liability insurance, McMushroom believes. Any additional costs would most likely be treated as an extraordinary charge against earnings. But in any case, he expects SCO to come out ahead.

But will the suit see the courtroom? "Frankly, I don't think so," said McMushroom. "I expect SCO to settle before depositions are taken. But on the other hand, if they go through with the suit, they may set a legal precedent for the Unix lawsuits."

SCO would not return calls about the rumored lawsuit, set to be filed on April 1. ■

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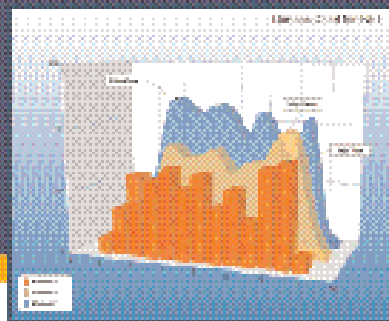
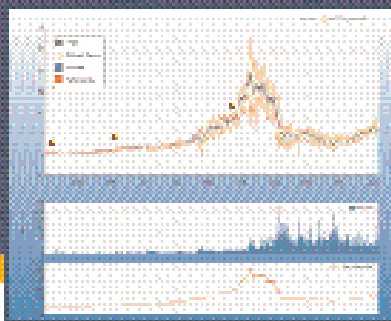
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# Semantic Web Moves From Theory to Reality

◀ continued from page 5

creating exhaustive descriptions—ontologies—of objects. The software development kit includes documentation, tools and sample code for creating applications that use this metadata for intelligent searches across various file types.

Oracle will include RDF support in Database 10g Release 2 later this year, according to Miller.

Although a scant eight companies together with Stanford University's Knowledge Systems Lab presented at the expo portion of the show, several companies said their products were being used in government, financial and commercial applications.

Amit Sheth, chief technology officer at Semagix, said his company's Freedom software was being used by an unidentified bank to help comply with the U.S. government's Patriot Act, by a European police force to follow crime patterns, and by a telephone service provider to create an application that provides information about pay-per-view movies.

He also said Regulatory Data Corp., a group founded by 20 of the global banks, is using it to help minimize risks of money laundering, fraud and terrorist financing.

The Patriot Act requires banks to track and account for the customers with whom they do transactions. Sheth said his application could provide the contextual information that goes beyond business intelligence applications and standard search engines to show relationships among people and organizations.

"Typically, when you type something in Google, it doesn't know if it's a name of a person or something like that," he said.

Freedom can tie together information from a variety of different formatted data sources to ferret out that a customer may have a relationship with someone associated with a terrorist organization, he said.

The software also could sift through what he called "dirty" data with acronyms, spelling errors, multiple formats or formats that are inappropriate for the field.

Another application financial organizations are using to sift through data is Unicorn's

Unicorn System. "Enterprises have accumulated an incredible amount of mess," said Unicorn CEO Zvi Schreiber.

The system includes a repository linking various enterprise data sources and the ontologies,

metadata scanners, mapping tools to visually map schema to ontology models, and modeling tools.

In addition to investment banks, the Metropolitan Life Insurance Company, the U.S.

Department of Defense and the Tennessee Valley Authority have used Unicorn to integrate enterprise data, to comply with regulations such as Sarbanes-Oxley, the Patriot Act and Basel II, and to automate

processes, Schreiber said.

"We're tying semantics back to real IT systems," he said. "By attaching business meaning to the IT systems, then [organizations are] able to comply better." ■

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## News Briefs

## MORE UPGRADES

&lt; continued from page 13

an update to its Java graphics toolkit. This version, the first to support Eclipse and J2SE 5.0, was set to ship by the end of March . . . IBM has launched a preview of **z/OS 1.7**, its mainframe operating system. Scheduled for release in September, the update integrates z/OS with the IBM Health Checker, provides enhanced Unix file serving, and has high-availability improvements to the TCP/IP stack . . . Hyperic has updated **Hyperic HQ**, its management platform for open-source software. Version 2.0 adds support for Apache Tomcat, JBoss, MySQL and PostgreSQL. The software costs US\$780 annually per managed machine . . . Windward Studios has updated its report generator, **Windward Reports**. Version 3.1 supports Microsoft's XML schemas, WordML and SpreadsheetML, as well as the Excel .XLS data format. The Windows application merges XML, SQL or custom data sources with Word report templates to generate reports. Windward Reports costs US\$179 for a developer seat, with deployment licenses ranging from \$495 to \$1,795 per server . . . The new version of **Jtest**, a Java unit testing tool from Parasoft, now includes increased coverage for complex code using JUnit. Version 6.0 also can test .jsp files and has a new test case editor. Pricing starts at US\$3,495 per seat.

## PEOPLE

**Irwin Mark Jenkins** is retiring July 1 as CEO of Qualcomm, and will be replaced by **Paul Jacobs**, who had managed the Qualcomm Consumer Products group. Jenkins will remain as chairman. Another retiree is president **Tony Thornley**, who will be replaced by EVP **Steven Altman** . . . **Mark Myers** is the new VP of marketing for ObjectFX, a company that sells Java-based, location-aware services. Previously, Myers was VP of strategic alliances for Convera Technologies. ■

## Sun Streamlines Java Release Process

BY YVONNE L. LEE

Starting with the Java 2 Platform Standard Edition version 5, which is scheduled for public review in the second half of 2005, Sun intends to be more nimble in how it delivers Java updates by cutting out the middle layer.

Sun has offered three kinds of Java updates—new features, maintenance releases and updates—according to Mark Reinhold, chief engineer for J2SE. Starting with the J2SE 5 release, Sun no longer will offer maintenance releases.

Big feature releases, such as the upcoming release of J2SE 5, represent major overall upgrades to Java. Maintenance releases had one or two new features and performance enhancements, he said, while update releases had a very small number of “carefully chosen” bug fixes.

“We’ve cranked up the frequency of feature releases, we’ve eliminated the maintenance releases, and we’ve updated the frequency of update releases,” said Reinhold. “By making the feature

releases more frequent, we can be more nimble in how we react to other platforms—.NET being the obvious one.”

Reinhold said that when Sun shipped maintenance releases, Java development teams would focus on producing the maintenance upgrade and ignore work on the longer-term feature release.

“They’d lose sight of the fact that the thing that you’re focusing on is the feature release,” said Reinhold. “By eliminating the maintenance

releases, we can ship feature releases on time.”

Reinhold said the new system also would enable Sun to ship bug fixes more quickly.

Sun also plans to post an early draft of J2SE this month. Reinhold said posting the specification early in its development process is part of the J2SE 5 expert group’s goal of making the development process more transparent.

“We don’t want people to think we’re operating in a smoke-filled room,” he said. ■

## EJB 3.0 Seeks Wider Audience

&lt; continued from page 1

EJB 3.0 model specifies a Plain Old Java Object and will meld methodologies used in Java Data Objects 2.0.

JDO 2.0, which is JSR 243, is currently in public review.

Oracle, which has an object-to-relational persistence architecture in TopLink, a class of libraries used for O/R persistence that links with application and EJB servers, has announced an early working version of EJB

3.0 in its Oracle Application Server Enterprise JavaBeans 3.0 Preview. EJB 3.0 went into early public draft in early March.

“There’s still quite a bit of work to be done,” Shannon said. “It’s not complete. We’re hoping it will be much more complete by JavaOne [this June].” That’s when the project would have all its features complete, he said.

Shannon expected a proposed final draft in the fourth quarter. ■

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# Replicating Projects for Distributed Development

AccuRev's latest SCM offering makes remote teams feel like they're working at main office

BY DAVID RUBINSTEIN

A software configuration management tool, by its very nature, is designed to allow collaboration, often with team

members working in different locations without access to the same high-speed local area network. With the release last month of version 3.7 of its

eponymous SCM server, AccuRev claims to have made the collaborative effect of SCM over distributed development organizations even stronger.

A new Replication Server, offered as an addition to the AccuRev Server, allows a project to be sent to a remote site once, instead of having to deliv-

er it as many times as there are developers at that site, according to Damon Poole, the company's founder and CTO. Other vendors of SCM solutions, notably Rational in its ClearQuest multisite product, use replication technology in their products.

Prior to AccuRev's release of the Replication Server, Poole said, the company's SCM system required that a branch of a project reside at each remote site, which meant an arduous set of merges from one branch to the next, as well as checking code in to another project level. The Replication Server allows everyone on the team, regardless of location, to feel as if everyone is at the same site, working with the same process. "From an end-user perspective, there's no replication going on at all," Poole said.

He explained that the Replication Server does not require changes in process to use in distributed development. The replication is delivered to remote sites for read-only purposes, but the team can write changes to the project directly back into the master server, saving bandwidth and not requiring a high degree of availability to the network link. Also, teams can be added onto projects simply by installing a Replication Server at the new remote site. "It's a fundamentally different way of looking at [SCM] for distributed development," he said.

## VISUALIZATION STREAMS

AccuRev's SCM system is based on the company's notion of streams, which visually represent a project in all its stages—testing, development, maintenance and release. The StreamBrowser, AccuRev's interface into the SCM tool, appears in the Replication Server just as it would in the master server, Poole said. "StreamBrowser allows you to see all the high-level things you want, the integration points, the releases, who's working on what," he said.

The Replication Server is priced as an add-on to the US\$1,495-per-named-user AccuRev Server, and was to become generally available at the end of last month. ■



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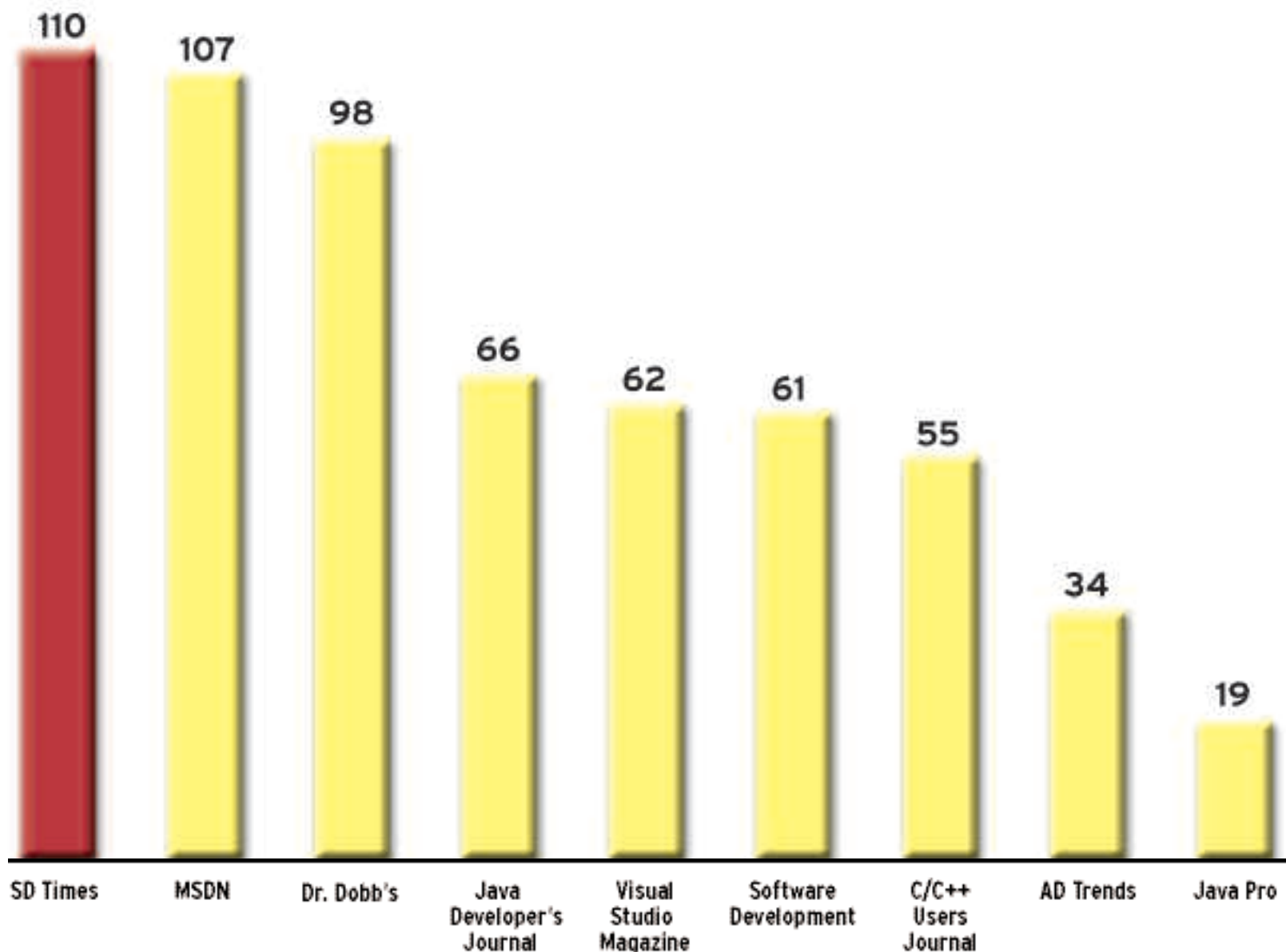
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# IBM, Sun Approach 'Open Source' Differently

◀ continued from page 1

Source Initiative definition of open-source software now or in the future," said Sutor, vice president of standards and open source.

But when Sun followed suit with its own patent donation two weeks later, the move sparked criticism and allegations that Sun's license was not sufficiently open.

In an announcement issued by the company on Jan. 25, Sun claimed it was granting the "global open-source community access to more than 1,600 patents" associated with its Solaris operating system.

That led many to believe Sun's offering could be used in any open-source project, but that is not clear from Sun's public statement, which seems to limit use of the patented code to OpenSolaris.

"Armed with access to Solaris OS platform intellectual property, OpenSolaris developers and customers alike no longer need patent protection or indemnity from Sun and other participants in the OpenSolaris community for use of Solaris-based technologies under the CDDL and OpenSolaris community process," the statement said. However, there is nothing in Sun's license that seems to specifically restrict use of the OpenSolaris code to the OpenSolaris project.

## 'NOT A MORAL OBLIGATION'

At first, "it seemed like a statement that every company [making an open-source donation] grants," said Brian Behlendorf, founder and CTO of CollabNet, and director of the Apache Software Foundation. "But [Sun's donation] is not a grant to the entire open-source community."

He stressed that open source is not a moral obligation, but said that Sun would be better served if more open-source developers could partake. IBM's Sutor agreed: "If you want to use [Sun's patents] in Linux, you are out of luck," he wrote in his blog on Jan. 25. But he commended Sun for doing as much as it did. "It is a step in the right direction."

However, neither Sutor nor Behlendorf would point to specific language in Sun's license that would restrict use of the OpenSolaris code or patents.

Gary Barnett, an analyst at



**Sun's donation isn't a grant to the entire open-source community, says Apache's Behlendorf.**

U.K.-based research firm Ovum, said Sun is serving its own community of ISVs and customers by limiting the use of its patents, and that the decision to do so is legitimate. "But as an attempt to establish leadership in the open-source community, [Sun's patent donation] is an abject failure."

Asked to respond to Bar-

nett's statement, Sun declined repeated requests for a comment. But in a Feb. 7 published report in eWeek, Tom Goguen, vice president of Sun's operating platforms group, said: "It is not Sun's intent to sue members of the open-source community at large, but rather to provide protection for developers working with OpenSolaris technology."

Sun's announcement of the patent donation quoted its chairman and CEO Scott McNealy: "The release of more than 1,600 patents associated with the Solaris OS far eclipses any other vendor's contribution." The comment was clearly aimed at IBM's earlier donation of 500 patents. But Paul Kirby, an analyst at Boston-based AMR Research, said, "I don't think it matters how many patents are issued."

## NOT 'PEACE AND LOVE'

What does interest Kirby is the message IBM is sending. "With

the donation, IBM has cast its opinion about Web services." A number of IBM's patents relate to Web services, he said. There has always been an open question on how Web services transactions should be priced, whether each transaction might be charged for, he said. "IBM is saying Web services should be free."

With the pledge, IBM is also extending its already successful effort to commoditize technology and make money through value-added services, said Barnett. "IBM is not pretending [its patent giveaway] is about peace and love."

IBM's recently donated patents protect a wide range of highly specific processes used in Web and other applications. For instance, one patent deals with "accessing databases when viewing text on the Web" and another is associated with "migration of legacy applications to new product architectures."

All 500 of IBM's patents

are listed in the company's patent pledge ([www.ibm.com/ibm/licensing/patents/pledged patents.pdf](http://www.ibm.com/ibm/licensing/patents/pledged%20patents.pdf)), which also states the terms under which the pledge can be revoked. "IBM reserves the right to terminate this patent pledge and commitment only with regard to any party who files a lawsuit asserting patents against Open Source Software."

By contrast, Sun's FAQ regarding its license at [www.opensolaris.org](http://www.opensolaris.org) states, "Can Sun ever take away the OpenSolaris source code? No. The code is available to the community forever."

However, unlike IBM, Sun has not made a full listing of those donated patents clearly visible with license terms, so it is not clear how many are part of the OpenSolaris offering, and how many of those patents may be used by other projects. For now, it seems that the confusion regarding the patents will continue. ■

## Sun's License for Confusion?

Custom-crafted CDDL is just one of more than 50 open-source licenses

BY JENNIFER DEJONG

When Sun donated its Solaris software patents earlier this year, it did so under the Common Development and Distribution License (CDDL).

A variant of the commonly used Mozilla Public License, the CDDL was created by Sun for this particular offering and is just one of more than 50 open-source licenses, each with its own definition of what open source means, said Bill Weinberg, an open-source architecture specialist at Open Source Development Labs (OSDL), a Beaverton, Ore.-based nonprofit organization that promotes the adoption of Linux.

And if the sheer number of licenses isn't confusing enough, the CDDL itself is perplexing. The license, which has been approved by the Open Source Initiative (OSI), a nonprofit corporation that certifies open-source software, doesn't actually say that the Solaris patents can be used only in OpenSolaris projects. In fact, the actual text ([www.sun.com/cddl/cddl.html](http://www.sun.com/cddl/cddl.html)) does not even include the term

"OpenSolaris."

"Sun had left it ambiguous whether everyone making free software and open source had the benefit of its patent claims," Columbia Law School professor Eben Moglen wrote in his blog.

Weinberg said crafting custom licenses is a common practice, but developers would be better served if there were fewer.

OSDL's advisory board is working to reduce license proliferation, he said. "There is a perception that additional licenses mean additional risk, and that could slow the adoption of open-source software." But he also pointed out that open-source licenses are being judged more harshly than those for proprietary software. There is a perception that open-source licenses are complex, but proprietary licenses are complex, too, said Weinberg. "But in the proprietary world, everything is quietly happening behind closed doors."

Bob Sutor, vice president of standards and open source at IBM, echoed that sentiment. "If I am [a developer] working



**Developers would be better served if there were fewer licenses, says OSDL's Weinberg.**

with any software that has a license attached to it, I better talk to my attorney."

According to OSI, prior to the Mozilla Public License, released in early 1998, the licenses most commonly used for open-source software were: the GNU General Public License (GPL), the Lesser GPL (LGPL), the Berkeley Software Design (BSD) and the MIT license. Weinberg noted that although the legal concerns around open-

source licensing may appear to some as new, they aren't. "The GNU compilers have been used in embedded systems since the late '80s," he said. "Virtually all the commercial players in embedded systems have successfully resold or rebundled the compilers with no legal issues."

Still, enterprise developers looking to combine in a single application code that is licensed under multiple licenses should work with their attorneys to ensure that the various licenses are compatible.

That's not always easy. "Software architects are not lawyers, and lawyers are not software architects. They are attempting to understand each other's domains," said Weinberg. He also noted that companies such as Black Duck Software, in Waltham, Mass., are offering services that audit code for open-source license compliance.

IBM's Sutor reiterated that developers and the lawyers need to pay close attention to licensing terms for all software, not just open source. "You need to know what you are getting into." ■



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# Wind River Places Big Bet on Open Source

Proposes to lead Eclipse into embedded, donates TIPC protocol for VxWorks to SourceForge

BY EDWARD J. CORREIA

SAN FRANCISCO — Wind River Systems, profitable for the first time since 2001, is betting heavily on open source with announcements of major initiatives in the Eclipse project and TIPC, the open-source communications protocol used for messaging between disparate operating systems.

Wind River launched an urban assault here at the Embedded Systems Conference in early March, with a fortresslike booth poised at the exhibit hall's main entrance, staffed by storm-trooper types clad in parachute pants and army boots, who boomed rock and roll music and encouraged developers to "Destroy the Box" (rather than think outside it). The war plan was accompanied by a like-titled keynote: "Five Steps to Avoid Becoming Road Kill," delivered by president and CEO Ken Klein.

The speech opened with general statements about the difficulties of embedded software development, the high

*'Eclipse today doesn't know how to handle [embedded], and everybody has had to build that extension...over and over.'*

—John Bruggeman, chief marketing officer of Wind River

*'We don't know what they're talking about. The framework is ready for plug-ins.'*

—Inder Singh, chairman and CEO of LynuxWorks

project failure rates, cost overruns, and shrinking staffs and development cycles. He then led into how companies want and need simplicity of tools and targets across projects, and how open source and open standards are helping developers focus on the applications that differentiate their products.

But rather than building to a crescendo of how Wind River's grandiose open-source strategy might help save the world, the tempo shifted, and Klein spent the remainder of his soliloquy spouting platitudes for career advancement, such as "Manage Up," "Don't Take Change Personally" and "Just Say Yes."

One developer left the hall feeling unmotivated. "It sound-

ed like he was blaming all the problems of development on the little guys," he said.

Ironically, Klein himself ignores his first principle—"Get Over 'Do It Yourself'" with his company's proposal to extend the Eclipse framework for embedded development, something he believes no other company has been able to do.

"We're the only company in the embedded industry with enough resources to actually contribute," said John Bruggeman, Wind River's chief marketing officer, speaking about the so-called Device Software Development Platform project, which Wind River proposed soon after joining the effort as a strategic developer member

earlier this year. "We've got to invest in a major way and lend our expertise to Eclipse." The changes are necessary, Bruggeman said, to enable Eclipse to accommodate the variety of target architectures and operating systems common to embedded industries. "Eclipse today doesn't know how to handle that, and everybody has had to build that extension to the framework over and over, [but] nobody has contributed it, and few companies know how."

Inder Singh, chairman and CEO of LynuxWorks, disputed that, saying, "We don't know what they're talking about. The framework is ready for plug-ins." In fact, LynuxWorks already has developed numerous plug-ins for Eclipse.

Bruggeman admitted that there's some risk involved in developing a project that could benefit potential competitors. "The framework doesn't add value; what you plug into it adds the value. A 150-person company would never be able to do this them-

selves, and could benefit from our work."

## VXWORKS GETS TIPC

Wind River also has extended Transparent Interprocess Communication (TIPC), the open-source interapplication communications protocol, to support VxWorks, and will contribute the implementation back to the community through SourceForge.

Support of the protocol, Bruggeman said, will enable embedded systems hosting both Linux and VxWorks, for example, in a telecom call processing board, to exchange messages, even if the apps are running on different processors. "So I could have VxWorks running on one [processor] core handling the calls, and it could pass information about the length of calls to billing software on another core at the TIPC layer."

The tool, which also adds load balancing and other benefits, will be licensed under a dual GPL/BSD license. ■

# QNX Reveals Source Code

Platform Core: Developers can peek, but must pay to tweak

BY EDWARD J. CORREIA

SAN FRANCISCO — QNX Software Systems is among the latest companies to bow to market pressures for openness, but it's not doing so entirely. After 25 years of selling proprietary software, the company last month unveiled the Platform Core Source Kit, giving developers visibility into most components of its Neutrino RTOS.

The kit, which is available now and priced by project, provides source code for all Neutrino system and runtime libraries, audio, graphics and I/O drivers, TCP/IP and other networking services, and POSIX and QNX utilities and debugging tools, but does not include the microkernel. The announcement came at the Embedded Systems Conference held here in early March.

"By making the source available, customers can deep-dive into performance issues, take advantage of specific optimiza-

tions for their applications and step right down to a low level of the application to do source-level debugging," said Mark Roberts, director of product management at QNX, adding that customers had been asking for visibility into operating-system internals. "This gives them that visibility; it's the source code that corresponds to the standard product offering."

According to Darrin Shewchuk, director of media and analyst relations, the move was driven by developer demand for a greater degree of customization and will help to make bugs easy to spot. "Access to the source around the kernel allows deeper hooks into operational efficiencies. Once you have more visibility into the OS, things that would normally be obscured from a developer's view are opened up, and they can see where a bug might be happening. It facilitates quicker development and debugging."

## FORK AHEAD

Changes to source code are allowed, Roberts said, but support for those changes could come at a price. "Changes would be supported under our priority support plan, under which you're buying custom engineering and branch-support services."

Still closed is the Neutrino microkernel, which Roberts said is a relatively small amount of code, and employs a unique performance optimization architecture. "We didn't want to expose those trade secrets."

Shewchuk noted the obvious effect Linux and the open-source movement has had on QNX and other traditionally closed-source companies. "Linux has created an awareness and demand for more open systems," he said, which has led to sweeping changes in the marketing strategies of many companies.

Still, Roberts stuck to the

ers perceive that having access to open source gives them insurance and comfort."

The kind of comfort, perhaps, to retain customers-turned-competitors since QNX was acquired in November by Harman International? Roberts denied a connection. "This product was in development much before the deal was closed. We've retained every customer in our automotive and networking core markets, and we believe the acquisition has strengthened our position."

Painting a different picture was John Bruggeman, chief marketing officer at Wind River Systems, a rival RTOS maker. "Our phones were ringing off the hook the day after [the acquisition] was announced," he claimed. The two compete heavily in the netcomm device segment, but Wind River is overshadowed by QNX in the automotive market. "QNX owned telematics," Bruggeman said. "But to be bought by a huge competitor to your customers? They were asking us, 'What the heck is going on?' You'll be seeing a lot from us in that segment this year." ■



Developers can deep-dive into performance, optimization and debugging, says QNX's Roberts.

assertion that the openness of Linux was not a primary motive to expose Neutrino. "It's a natural evolution of the way people debug. It gives them the visibility and simplicity they want," he said, and addresses concerns developers have involving open versus closed source. "Develop-



# An ESC Buzz Around Real-Time Java, Linux

## Software comes back into focus at this year's Embedded Conference

BY EDWARD J. CORREIA

SAN FRANCISCO — There was a lot of traffic at last month's Embedded Systems Conference drawn to the **Sun Microsystems** booth. Although the booth was small compared with those of previous years, attendees were attracted by its demonstration of Mackinac, the company's implementation of the Real Time Java Specification.

Dubbed the inverted pendulum, the demo showcased the responsiveness of a JVM written to the spec by using Java code to control a motorized tractor that was keeping a steel rod balanced upside-down. Also included in the demo was an animated Java applet running in the same JVM that would pause when garbage was collected while the pendulum remained unaffected.

Greg Bollella, a Sun distinguished engineer and director of the Mackinac project, said the tool will give Java developers access to real-time performance using their current skills, "while preserving the safety of Java, [which includes] bytecode verification, strong typing, a lack of pointers and a shorter debug phase," he said. Sun plans a commercial version later this year.

Previewing its own commercial implementation of Mackinac was middleware vendor **Objective Interface** with ORBexpress RT for Java, a version of its object request broker for embedded systems that it says will give Java developers the same real-time capabilities previously available only to C++ and Ada. Target apps are expected to include military command and control, and large industrial and telecom control systems.



Sun's real-time JVM performs perfectly without compiling ahead of time, says Objective's Beckwith.



TimeSys will take any Linux kernel and generate a full Linux distribution around it, including board support and Eclipse-based IDE, says Weidman.

According to Objective CEO Bill Beckwith, the company had until now deferred development of such a product because of real-time performance issues such as priority inversion, which can cause high-priority tasks to be delayed by lower ones not in direct control of the VM. "We've seen less than perfect results with other products, even highly [performing] C++ ORBs like Tao's. But Mackinac's results were perfect." And unlike the real-time JVM under development at IBM, Beckwith said Mackinac's performance does not rely on compiling ahead of time. "So you don't lose the ability to verify bytecodes" or adherence with Sun's Java specs, said Beckwith, also the company's CTO. Release is set for June.

### ALL ABOARD ONBOARD

With the introduction of its so-called OnBoard program, **TimeSys** is inviting board and semiconductor manufacturers to send their custom Linux kernel to TimeSys, where the company claims it will build a ready-to-run custom distribution, including a root file system, board-level drivers and TimeStorm, its Eclipse 3-based cross-development environment. ARM, Freescale, Intel and MIPS already have joined the program.

"We're providing this as a service to our customers," said TimeSys president and CEO Larry Weidman. "We'll take their kernel, add the latest open-source features and create a customized distribution [suitable] for any number of applications," something he said could take months to learn how to do otherwise. The result, he said, is a

stable, consistent and supportable distribution. "We believe that's what the Linux people want, and it represents lots of potential design wins for us," Weidman said.

**Express Logic** has added TCP/IP stack- and file system-awareness to ARM's RealView debugger for ThreadX, its royalty-free RTOS that it boasts is in more than 200 million devices worldwide, including inkjet printers, digital cameras, cell phones and medical devices.

John Carbone, vice president of marketing at Express Logic, said the capability does for its NetX stack and FileX file system what RTOS-awareness does for debugging an operating system. "If you're having a problem with packet processing, you

can get visibility into the communications stack," he said, including IP instances, UDP and TCP socket information, and packet availability within a given pool, which can be useful for avoiding thread blocking due to insufficient pool size. Key file-system data structures also can be visualized. The company also announced a version of ThreadX for AMD's Blackfin processor and native USB support. "Previously, it had to be developed by our customers or purchased from a third party," Carbone said.

VxWin 3.0.1 from **Kuka Controls** now directly supports Microsoft's Target Designer development tool for Windows XP Embedded, and the extended hibernate mode and other features delivered with that software's Service Pack 2. VxWin is a tool that allows devices running Wind River's VxWorks to run Windows XP Embedded applications without changing the hardware.

John Patchin, an application specialist at the century-old German robotics company, explained how the company's software permits Windows apps to run without interfering with the real-time responsiveness of VxWorks. "We change the way memory is addressed so that Windows doesn't see the memo-

ry being used by the RTOS." He said the tool is useful for simplifying RTOS front-end development by targeting Windows. "With VxWorks, it's hard to write graphical applications." The company also offers a version for Windows CE-based devices.

Claiming an industry first, **Virtutech** was demonstrating an early version of Hindsight, a debugging add-on to its Simics hardware simulation environment that permits backward execution not just of applications, but of the entire execution environment, including operating system boot. According to Paul McLellan, Virtutech's vice president of marketing, the system guarantees the most accurate environment possible for recreating software errors.

"As the execution moves forward, we store checkpoints," McLellan explained, so that when backward execution is needed, the debugger simply reverses to the next checkpoint and advances one less. "So if the previous checkpoint is 10,000 lines back, we go back 10,000 lines and then advance 9,999. It's all saved in memory, so it's fast." McLellan claimed Hindsight requires no changes to applications, and supports all development models and tools, "as long as they support checkpoint and restart, which they all do." A beta program begins in May. ■

## Less (Hardware) Is More at ESC

BY EDWARD J. CORREIA

SAN FRANCISCO — After decoupling with Europe's Electronica show, there was certainly less hardware at this year's Embedded Systems Conference held here in early March. But several announcements made it onto the radar screen.

For today's far-flung development teams targeting TI designs, the LAN560 from **Blackhawk** is a remote JTAG emulator and debugger with a network interface built in. Available now, the LAN560 works with TI's Code Composer Studio and can be used for remote communications and debugging of devices deployed in the field.

Single-board computer maker **WinSystems** unveiled the PCM-GPS, a PC/104 module

for its SBC line that adds GPS and cell modem support to wireless-enable new or existing embedded systems in the field. The GPS function provides position, velocity and time information, and the cell modem supports GSM/GPRS and CDMA and is suitable for fixed or mobile applications. The company also announced that it now supports Windows CE on several of its SBCs.

**Toshiba** was demonstrating a reference design built around the TX-4939XBG-400, the first embedded PCI-based processor to be built by the company using its 90 nanometer technology and TX49 core. Enterprise applications for the design include multimedia appliances, residential gateways and set-top

boxes. "Small hotels and others in the hospitality industry can use it for content delivery, video on demand and guest accounting," said Deepak Mithani, director of business development and technical marketing at Toshiba's TX RISC business unit. Samples will be available in August, and volume shipments in October.

**ICop Technology** introduced the eBox II Windows CE .NET 5.0 Jump-start Kit, a low-cost, all-inclusive development kit built around its Vortex86 SoC that it says will permit even beginners to build their first embedded device in a matter of hours. The US\$295 kit includes a BSP, downloadable CE image and a four-month trial version of Microsoft's Platform Builder. ■



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# Balancing the Question

## To elegantly deliver Web applications to new and such as phone and PDA, an open, standards-based

BY GEOFF KOCH

**C**oursework.stanford.edu had humble enough beginnings in the late 1990s.

"It started as a research project, and I was the only developer working on it," said Scott Stocker, a former history master's student who today is director of Web communications at Stanford University in Palo Alto, Calif.

Currently, the course management Web application is used by roughly 600 professors each quarter to post assignments, foster online discussion and administer quizzes. Stocker, who has long since moved on and up the Stanford IT hierarchy, left behind a full-time staff of four to manage the application he built from scratch.

Managing application scaling, whether on a single university server or a massively parallel and distributed commercial system, is a challenge that just about every coder will encounter at some point in a career. And mobility only compounds the scaling issue, as new phone- and PDA-powered users begin banging on Web applications designed for desktop and laptop browsers.

From academia to industry, hands-on

coders are using a handful of best practices to address an explosion of scaling issues. While tools are available to help, an eat-your-vegetables kind of common sense seems to be the first step toward elegantly offering Web applications to new and different types of users.

### SCALING AT STANFORD

Stocker's users were professors who, despite having impressive resumes and jobs at tech-steeped Stanford, had varying degrees of Web competency. The application had to be flexible (to be useful both to the Web pros and novices on the faculty), robust (if it crashed or was buggy, no one would use it), and inexpensive (Stocker was a staff of one, funded by a small grant from the Andrew W. Mellon foundation to develop new learning management tools).

The approach, as is fairly common in academia, was to get the ball rolling with open standards and open source. Stocker built on top of the Linux operating system and MySQL database. Even though it was a pre-J2EE world, Stocker was already hooked on Java and relied heavily on servlets and JavaServer Pages (JSPs).

Unlike CGI programs, Java servlets are persistent, standing by in memory to

fulfill multiple requests once they're started. And beyond the benefits of separating a Web page's logic from its static elements, JSPs aren't restricted to any specific platform or server.

As coursework.stanford.edu moved from this-might-actually-work to mission-critical, Stanford's main IT shop eventually stepped in to support Stocker's creation. Stanford IT is a Solaris/Oracle database environment, but the Java APIs, especially Java Database Connectivity (JDBC), plugged in easily enough to this back end.

The JDBC API allows Java programs to interact with any SQL-compliant database. Since nearly all relational database management systems (DBMSes) support SQL, and because Java itself runs on most platforms, JDBC makes it possible to write a single database application that can run on different platforms and interact with different DBMSes.

Stocker continues his open-source ways today. His latest project, Stanford's public event calendar (events.stanford.edu), is as low-budget as it gets. The entire application runs on a single Red Hat Linux-powered Dell server in his office. A second Dell machine, which he uses as his staging environment, doubles as his hot spare.

"If something happens, I can just switch the DNS and I'm live again."

Using the Apache Software Foundation's Struts tags—a library of routines for many common coding actions—freed up Stocker to focus mostly on the business logic and presentation layer. And his intimate familiarity with and ownership of the codebase made it easier to scale the application to new customers, such as the Stanford College of Engineering, which now offers a flavor of Stocker's calendar on its Web site.

### SCALING AT POWELLS.COM

Nearly 700 miles north, in rainier and more coffee-soaked Portland, Ore., Darin Sennett is another fan of scaling with open standards and open source. Sennett is the director of Web stuff (his actual title) for Powell's, the self-described "legendary independent bookstore."

Powell's launched its first rudimentary Web site in 1994, a year before Amazon.com appeared online. The site's e-

commerce application was decidedly human-centric.

"In the beginning, there were just three of us—the first programmer/designer of the system, and a woman and I who would receive orders [via e-mail], pull books from the shelves in the store, respond to e-mail, sell the books at the register and then box them up ourselves," Sennett explained. "When we added our main store's database, I was the customer service department and answered e-mails eight hours a day all summer, while the woman I worked with sold all the orders on a ten-key. Our shipping department consisted of one person with a tape gun and some recycled boxes."

Powells.com has grown significantly since then. In January 1995, online sales were US\$8,000—a tiny percentage of the business—and the site was averaging 470 searches per day. By 2003, 40 percent of Powell's sales were coming through its Web site, and last year the Internet operations, including the 15-person shipping department and 20 technical and production employees, moved to a new 60,000-foot warehouse.

Powell's may be the largest independent bookstore online, but its Web site is still small potatoes next to Amazon.com, which now does US\$6 billion of business annually selling more than 20 million products online, including all 29 colors of the KitchenAid five-quart mixer.

"We've never had a big wad of investor cash, so we've had to work within profitability," said Sennett. "We've been choosing food over special effects from the very beginning."

Like Stocker, Sennett has dealt with lean budgeting by relying heavily on open standards and open source. He ticks off a familiar litany of fixtures atop which the site sits—Sun machines, the Solaris operating system, Apache Web server software, the MySQL database and lots of hand-coded Perl and PHP scripts.

Scaling for Sennett is more about end users and experimentation than the latest, greatest application architecture. He said he doesn't worry so much about keeping up with technology, but instead just tries to sell books online better and more efficiently each day.

Which isn't to say that Powell's is anti-programming progress. Sennett is proud

## DETAILS CAN CLOUD THE BIG PICTURE

Emre Kiciman, a newly minted Stanford University computer science Ph.D., encountered one of those notorious Web application gremlins when his wife booked air travel last spring through a travel Web site.

When Kiciman visited the site later to check the itinerary, it didn't show up at all. The only record that did show up was "Confirmed as of October." But the ticket had been booked only in March, for travel in April.

"The site otherwise was 'normal': not slow, valid HTML, no error messages, etc.," Kiciman said.

Finding these mistakes in applications made up of stitched-together servers and third-party code can be difficult. In his doctoral research analyzing statistical structure of Web site behavior, Kiciman found that, on average, for every given block of time that these glitches gum up a Web application, 75

percent of that block elapses before the application owner realizes that a problem exists in the first place.

Kiciman believes that available tools—tracking CPU usage and the number of requests, determining when a disk is full, and so on—are sufficient to monitor individual pieces of Web applications. But he said that there's no good way to monitor how all these pieces are working together, particularly when systems are so complex that it's impossible to specify correct behavior in the first place.

"We've got more low-level details than we know what to do with, but we have almost nothing about the big picture," Kiciman said. "It's like driving while looking through a magnifying glass: You see lots of details. But you can't drive very well, because these details overwhelm you and you can't look very far down the road."

—Geoff Koch



# of Scale

## different users, approach is best



of the fact that Powells.com predates Amazon.com and that his site offered a shopping-cart feature before “shopping cart” had entered the Web lexicon.

Sennett’s current scaling challenge is transforming his site with Web standards that, unlike old-fashioned HTML, can potentially adapt to different types of output. A site redesign is under way, and one of Sennett’s programmers is at work emulating the current site structure in Cascading Style Sheets (CSS).

For now, new Really Simple Syndication (RSS) of all the database-driven content on Powells.com is a first step toward standards that will make it easier

to scale the site’s content to mobile users or otherwise.

One category available to RSS subscribers is Powell’s Review-A-Day service. Supported by content-sharing agreements with literary fellow travelers, new reviews are delivered daily to the Powell’s site. Atlantic Monthly, Christian Science Monitor, Esquire, New Republic, Salon.com and Times Literary Supplement all contribute, meaning there’s just one day each week when Powell’s overworked staffers have to pen reviews of their own.

It may seem quaint to consider content itself a scaling challenge. However, there’s no reason to race to offer syndication if new information isn’t appearing on a site with some regularity.

### SCALING TOOLS PROVIDERS

For all their anti-establishment tendencies, it’s no surprise that academia and independent bookstores would try to get as much mileage as possible out of open-source and do-it-yourself code. But in much of big business’s mega-online operations, managing complexity and scale with proprietary software is the norm.

Indeed, many software companies have amassed fearsome market caps by providing applications that help companies to stitch together, scale and manage increasingly complex Web environ-

ments. One is Computer Associates, which provides software that helps manage the infrastructures of more than 95 percent of Fortune 500 companies, according to its Web site.

Paul Lipton, technology strategist for Islandia, N.Y.-based CA, has scaling advice for Web managers trying to keep costs down and handle growing groups of window shoppers—people who stop by a site and consume computing resources, perhaps to do some what-if travel planning, without ever making a purchase. The key, he said, is watching both Web traffic and Web server performance.

“What happens if you are just analyzing visitors’ access and behavior, but not monitoring availability or performance of your Web servers? In this scenario, you may not realize soon enough that your Web server went down, or that you are running out of system resources,” Lipton said. “Or what if you monitor the performance of your Web servers without paying attention to visitors and patterns followed on your Web site? In this case, you are probably not maximizing revenue.”

CA’s advice—the company has grown into one of the world’s powerful software companies by proffering it—is to use a complete Web management solution that can manage from IT, end-user and business-user perspectives all at once.

Tom Murphy, director of application

service management at software storage giant Veritas—now merged with Symantec—echoed Lipton’s remarks.

“Customer-facing Web-based applications need to ensure acquisition and retention,” Murphy said. “Organizations worldwide invest heavily in the design and architecture of Web-based applications, but frequently don’t take the time to learn about the real end users’ experience. How do organizations know for sure that potential customers aren’t leaving their Web site because of poor performance?”

In increasingly complex IT environments, it’s hard to know anything for sure about a Web site, and even the best traffic and performance analyzers can miss glitches and gremlins that frustrate end users.

Looking down the road for tools to fix this scaling- and complexity-related challenge, at least a few promising signposts appear. One is TeaLeaf Technology ([www.tealeaf.com](http://www.tealeaf.com)), which gives Web managers a click-by-click view of how customers browse their sites.

The company’s RealTea application offers an instant replay of sorts, allowing developers to play back the page views and navigation choices leading up to a customer-perceived problem. Tower Records, for one, is using the application to help refine its checkout and search as

► continued on page 30



Hutkin’s challenge is scaling Time’s content to a diverse array of portable platforms.



# Balancing the Question of Scale

◀ continued from page 29

it tries to turn more of the 60,000 to 70,000 visitors to its Web site into paying customers.

Another player helping to scale and troubleshoot complex Web environments is start-up Splunk Technology. CEO Michael Baum, a veteran of IBM, Infoseek, Yahoo and at least two earlier start-ups, explained the problem his team is setting out to solve in a Splunk homepage blog posting:

"A typical server today can log more than a gigabyte a day, and a small data center can generate over a terabyte of operational data a week," Baum said. "In addition to the problems of scaling traditional solutions to data of this magnitude, variety and frequency of change, making meaning out of the data is still a difficult task for even the most experienced technical staff."

There's no word on when venture-backed Splunk—its name is derived



**Good Technology lets companies offer their enterprise apps, like Oracle, Salesforce.com and Siebel, to handset-carrying employees.**

from *spelunk*, to explore natural caves—will release its first product to help developers explore IT systems.

Even middleware behemoth BEA Systems is wading into the scaling and complexity fray. The company's WebLogic Server 9 product, available in beta, provides new instrumentation to help monitor functionality and improve performance.

"The instrumentation framework is straightforward but powerful, and quite simply it works like this: You identify the points within your applications or within WebLogic Server that you'd like to monitor, and you specify actions to be taken at those instrumentation points," explained BEA product marketing manager John Doppke. "This allows you, for example, to time how long a method call is taking, to log a stack trace whenever a method is called, etc."

## MOBILE-FRIENDLY STANDARDS

Scaling issues don't come up only when talking about diverse Web application stacks. They also come up when address-

ing the diverse nature of Web users, more and more of whom are armed with mobile devices hungry for rich data and services. Harris Hutkin's job is to think about how to best feed this growing mobile mob.

As a senior mobile product manager at Time Inc., Hutkin is awash in content, from magazine articles to movie trailers. His challenge is scaling that content to a diverse array of portable platforms. It's a challenge likely faced by lots of developers working on sites that predate the late 1990s tech bubble—Harris' dividing line for old-school and new-school Web shops.

"The old school is those people who originally discovered the Web," he said. "They built their HTML pages manually, mixing content and applications and relying on lots of custom coding."

"The new school is just about every company that's formed since the bubble burst," Hutkin continued. "Web infrastructure for these companies is marked by use of standards, such as XML. Data is separate from design."

The new school appears to be in a much better position to address mobile users. Standards-based architectures are more efficient at producing HTML or Wireless Markup Language (WML) pages. The whole mobile thing isn't a big deal for these shops, Hutkin said, since Wireless Application Protocol (WAP) 2.0 was defined to use standards-compliant data (XHTML) and style sheets (WAP CSS).

There's no easy answer to dealing with vast amounts of legacy pages in which simple text and data are intermingled with HTML design elements. One approach is to write scripts to look for old HTML code in the data. The scripts can replace the HTML with procedural calls (procs), strip it out altogether, or notify an editor about the poorly formed content.

"By having these procs in the data, instead of the normal HTML tags, the template that builds the page can



**CA's Lipton's advice for handling increasing numbers of window shoppers is to watch both Web traffic and Web server performance.**



**When Stocker created Stanford's course management Web app, he relied heavily on open source to get the ball rolling.**

process the proc depending on where the data needs to be displayed [Web, mobile device, etc.] and generate an appropriate file that can be read by the reader," Hutkin said.

Benignly named Good Technology seems to understand this spectrum of bootstrapped to standards-based, Web services-friendly code that mobile surfers may encounter. The company's GoodAccess and GoodLink products allow companies to offer their enterprise applications—including Microsoft Exchange, Oracle, Salesforce.com and Siebel—to mobile, handset-carrying employees.

"We recognize that as the transition is occurring to a Web services-based architecture, there are going to be many systems [particularly custom systems or intranets, for example] that do not have Web services," said Dennis Yang, a Good Technology senior product manager. "Therefore, it is important to ensure that the platform has some kind of transformation capability to turn a Web page into something suitable for a mobile device."

Yang added that the GoodAccess platform provides both Web services-based access and transformations of custom

applications into mobile-friendly output.

But the questions are different when it's an issue of content for the masses instead of access to a few important applications for employees inside a company computing environment.

"Are you prepared to offer all the content on your site in WML format, for instance?" Hutkin asked. "If your pages don't render well across devices, then you may have to consider producing a version of the site in WML 1.x, since 1.x is the least common denominator."

Even this least-common-denominator approach isn't cheap, as WML pages still need to be built. For content sites, generating an article page isn't difficult. Create a WML template, drop in the copy, and you're done, according to Hutkin. But getting users to those article pages is another story.

"Unless you have a standards-compliant homepage, you're going to have to build a special homepage and any other navigational pages for WAP users to navigate your content," Hutkin said. "This could be a time-consuming process."

So how does the mobility cost-benefit equation work out today at Time? For an answer, consider that the company just signed a contract with U.K.-based Flytxt (www.flytxt.com), a Short Message Service messaging platform provider. Hutkin said that despite all the rich-content, mobile-friendly visions of the future, he believes that Time needs to go where the users are right now—SMS.

"Ultimately, I believe everyone is hoping that the [standards bodies such as] Open Mobile Alliance [www.openmobilealliance.com] will develop standards that make many of these current issues insignificant," Hutkin said. "Until that time, we're focusing on text-based programs, which are easier to develop and usable by the largest audience."

"We'll be doing some WAP tests, but you won't be seeing a WAP version of any of our titles in the short term," he continued. "Development costs to create and maintain custom homepages are too great." ■

## SOFTWARE NOT DRAWN TO SCALE

What kind of scaling problems are the old-schoolers (those who originally discovered the Web and built their HTML pages manually) facing? How about the case of a legacy library of content. A few years ago, for example, the headline for a Web-published news story might have been coded:

```
<font size=4><b>Michael Jackson #1 Again This Week</b></font>
```

In the pre-Google, pre-WAP era, this coding made perfect sense and the headline would have rendered well in any late 1990s-era browser. Today, however, Google would have had a hard time finding the headline, and the `font size=4` headline wouldn't look good on a Web-enabled mobile device.

A better approach is to surround the headline with the `<H1>` tag, which can be defined in the style sheet so it looks good on various devices and which allows Google to find and store the headline. (H1 tags carry more weight than regular text in the Google PageRank process, according to several threads [answers.google.com/answers/threadview?id=248891] posted in Google Answers.) —Geoff Koch



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## EDITORIAL

## Patent Nonsense

The question of which company is the most altruistic when it comes to donating patents to the open-source community—IBM or Sun—is, ultimately, meaningless. Forget about the small print in their license agreements, and forget about the flowery prose coming from both firms' executive suites. In reality, both companies are simply furthering their own business strategy and trying to drive sales of their products and services. No more, no less.

IBM made the first move by donating 500 patents to a so-called "patent commons," widely believed to be motivated by a desire to strengthen Linux. Sun swiftly followed suit by giving away some 1,600 patents, widely believed to primarily benefit OpenSolaris and bolster it as an alternative to Linux.

IBM's interest in Linux is clear: Linux is a strategic weapon in Big Blue's arsenal. Although IBM doesn't control the platform, Linux does run on everything from x86 servers to midrange systems to mainframes. That drives hardware sales. IBM has aggressively ported much of its pricey back-end software, from DB2 to WebSphere, to run on Linux. That means big-bucks software sales and maintenance contracts. Likewise, IBM Global Services makes beaucoup billable hours around Linux implementation, migration, training and ongoing support.

The huge patent grant wasn't made because IBM loves open-source software. WebSphere, DB2, Tivoli, Notes and Rational developer tools aren't open-source products. Rather, it's that IBM benefits from influencing the course of Linux's evolution.

With a strong Linux, IBM is decreasingly vulnerable to a competitor—Microsoft. By making generous source code and patent donations to Linux, by assigning a myriad of developers to contribute to it, and by otherwise courting the open-source community, IBM can subtly affect the course of the operating system's evolution and implementation.

In that regard, IBM's donation of patents is good for business, because it's in IBM's interest for Linux to incorporate elements of IBM's patent portfolio. What's more, the license clauses in IBM's patent grant will help protect IBM's long-term interest in Linux against litigation from other parties, like Microsoft and SCO.

What about Sun? Like IBM, Sun wants to assert influence over a strategic operating system. Unlike IBM, Sun has chosen to focus on building Solaris as an alternative to Linux. Linux, after all, is dominated by Sun's competitors—namely IBM, but also Novell. From Sun's perspective, Linux is preferable, but only barely, to supporting Windows. A strong Solaris helps Sun defend itself against the probability that the industry's operating system agenda will be controlled by Microsoft (Windows) and Novell and IBM (Linux). That's why Sun's patent gift was carefully positioned as a gift to the OpenSolaris community.

So, let's move beyond charity: Neither company is issuing these wholesale patent grants out of passion or philosophy—it's all carefully calculated tactics. Neither company's grant is "better" than the other's; the license details and patent counts from Sun (favoring Solaris) and IBM (favoring Linux) differ only because the companies' long-term interests are different. What else would you expect? ■

## Simplification /s Sophistication

Think back to when Web sites were just beginning to take off. Do you remember learning HTML? Remember using a text editor to construct a Web page, which you then had to load into your browser to see what it looked like? It was hard work, and progress was slow. Not anymore.

Today, everyone can build a Web site. The soccer coach next door, the caterer down the street, the small business owner on the corner—all can put together a Web site in just a few hours. Did all these folks get that much smarter and master the intricacies of Web development? Hardly. The tools and Web development environments just got so much easier. And while the geeks among us may sneer at easy HTML tools, the fact is that they have had an incredible impact on the explosive success of the Web.

Compare this with business application development. Despite all of our advances in technology and methodology, developing business applications has gotten progressively harder. The job of developing software to solve business problems for internal use or for commercial

release seems to grow more complex and less achievable year on year. As a result, applications are not moving forward.

Remember talking about the day when business people could quickly and easily solve their own business problems without programming? Not only have we not achieved that goal, but we seem to have moved backward to where it now takes an army of analysts, architects, developers and specialists to produce applications of any real sophistication.

This is not a rant for a return to the good old days of green screens and host computing. Service orientation, distributed computing and componentized applications are all great advances. But we must make it easy to design, develop, integrate and manage these complex application architectures and solve real-world business problems, or it all becomes just an academic exercise. Here's a four-point plan designed to bring real sophistication and innovation back to the market:

**Bring Back the "Business Geek."** As we went from assembler to 4th Generation Languages, we worked to make it easier for mere mortals to write software. And we got pretty close. With languages such as PowerBuilder and Progress, a business person that understood some technology (or a technologist that understood some business problem) could turn out software that worked pretty well, and in pretty short order.

Prototypes came up in a week, and whole applications were often finished in just a month or so. Today it takes specialists loaded with specialty tools to do the same job. Java jocks tend not to know (or care) about business problems, and business analysts can't be allowed to actually sling any code for fear of breaking something. What we need is the return of the business geek and a return to the principles, tools and development environments that let that person be successful.

**Make Architecture Automatic.** Tools should promote

Niel Powers



Guest View

## Letters to the Editor

## LACKING CREDIBILITY

On first read, I couldn't decide if Andrew Binstock's column "Is Borland Relevant Anymore?" (March 1, page 45) was an act of intentional hackery or the result of a surprising ignorance of the software development industry and its history. After reading it again, I can only conclude that the author never intended to be impartial.

You will probably get some pretty heated feedback, so I'll just say that the article lacks any credibility.

**Bruce McGee**

The author of this article obviously hasn't looked at Delphi 2005 and has no idea of the incredible innovation Borland has done regarding MDA technology. ECO II is a powerful tool for the new generation of rapid development. In addition, Delphi 2005 integrates C# Builder, Delphi for Win32 and Delphi for .NET all in one IDE.

Delphi is Borland's answer to

Microsoft Visual C++ rather than being a competitor to Visual Basic. It offers very strong Win32 development while also doing the same for .NET. Microsoft doesn't really have a compiler that competes. What does Microsoft have that is a powerful language for Win32 and .NET that is an easy-to-use language? C++ doesn't cut it. The language is not nearly as productive.

On top of this...Delphi 2005 integrates StarTeam very smoothly and even has its own local version control (much like JBuilder). They have done a great job of integrating the products they acquired fairly rapidly.

**Kevin Berry**

*Editor's note: Bruce McGee and Kevin Berry are frequent Delphi-oriented contributors to the Borland Developer Network and other newsgroups.*

## AOP READY NOW

In your article "Moving AOP Out of the Lab" (March 1, page

1) Tom Barnaby says: "One thing Microsoft doesn't like about the AspectJ approach is that it is too easy to introduce unintended side effects. When you define an aspect, you may think it will be applied only to certain methods, but in fact it may also be applied to other methods you don't know about." He goes on to say that in order for AOP to move to the mainstream, "you have to be able to see what you are affecting. You need a visual rendition of where aspects have been applied."

Yes, that is important. And is available today. Check out the links to the AspectJ Eclipse plug-in.

The article also states: Although IBM has not formally implemented AOP capabilities into its software development platform, developers can get a feel for what it's like to work with aspects by downloading tools.

Eclipse (which is the basis for WSAD) is a rich client platform. Everything is a plug-in or an



good architecture. The deployment environments should enforce it, and the management systems should measure it. As most industries, the tools mature to the point that proper usage is almost automatic.

In software, we continue to build tools and development environments that depend primarily on individual expertise and discipline to produce properly constructed applications. Too often, the result is software that, while functional, is poorly thought out and constructed. Let's think differently. Let's build a development environment where the rules are built-in based on sound architectural principles, where architects can customize the rules to meet their specific requirements, and the rules are automatically enforced such that it makes it easier for developers to construct applications based on those principles.

**Complexity Is Not a Goal.** Pick up a current application development environment and try to build something. How much work do you have to do before you can produce results? Do you have to establish your persona first? Create a perspective? Outline a project? One of the key ideas behind programming is that simple things should be simple, and hard things should be only as hard as

necessary. Further, there should not be a steep learning curve.

Development environments should make it easy to learn just a little bit more as you need to do something that is just a little bit harder. We should provide an application development environment with a reasonable and predictable learning curve. Visual tools and wizards provide great productivity for defining and developing simple application components, but when the visual tools don't cut it, you're back to writing code in pretty rudimentary languages.

What's needed is a system that has advanced visual development tools, supported by a simple but robust business programming language that is easy to learn and apply—all tied together in one seamless environment. I have a saying about good application development environments: "Learn it in a month, master it in six." The key to achieving that goal is to provide an environment with a consistent, predictable learning curve.

**More Is Rarely Better.** In an effort to advance the science of application development, we keep adding more: more steps, more processes, more languages, more everything. We now have dozens of specialties, all designed to solve some small corner case of the overall busi-

ness problem. French author Antoine de Saint-Exupery once wrote, "Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away." I like that philosophy.

Business application developers have a lot on their minds. In solving business problems, they need to consider process management, workflow, security, user interface requirements, data manipulation and storage, and probably a dozen other things based on their environment—not to mention the business functionality that they were asked to address in the first place. Further fracturing of each of these areas means more standards to learn, more languages to master, more architectural components to understand and more decisions to make at every step.

Wouldn't it be great to have a single environment *with a single programming model* that covers all of the necessary application components? It is inefficient to have to learn one language for a user interface, another for business rules processing, another for basic process flow and yet another for data manipulation.

#### SOPHISTICATION INSIDE

We're at an interesting point in the software industry. For years,

we've been focusing strictly on the technology and providing more of it. This has made things much more complicated. Projects have gotten larger, costs have risen, and success rates have sagged.

In the process, we have often alienated the very constituency that we serve—the business!

We can reverse that trend by concentrating on a new type of sophistication—the sophistication that provides tools and development environments designed to make the complicated simple and the expensive affordable.

At some point, every industry comes to the realization that making what it does easier increases the acceptance (and hence the revenue) of its products and services. The business application industry seemed to understand this back in the 1980s and 1990s but has recently lost its way.

The complexity of today's environments and methodologies threatens to bring the industry to a grinding halt if we don't start working on the sophistication of simplification. ■

*Niel Powers is vice president of products for the Progress OpenEdge Division, a business unit of Progress Software.*

add-on. So downloading them separately is how it works. Developers can more than "get a feel for" it—they can use them now. Also, Eclipse != IBM anymore. Look at what IBM is doing with AOP and WebSphere app server. I would say they have implemented AOP in their development platform. One hundred percent? Probably not.

Lastly, attributes in .NET are not even close to what AOP is in AspectJ and AspectWerkz. I would say they are not even close to what SpringFramework has, and that is a very light implementation.

Mark Nuttall

#### IF IT'S FREE, IT'S FOR ME

Eclipse is cool. But let's face it, Microsoft and Borland were making this kind of IDE 10 years ago. Linux is cool, but Unix has been around since the 1970s. They're both great pieces of software, but they're not the revolutions that so many journalists make them out to be.

It's hard to believe that in an industry full of big companies, big salaries and big money,

software gets this much attention just because it's free (and make no mistake about it, the phrase "open-source" is just a code word for "free" in the minds of most).

Yahoo gave away scoops of ice cream to celebrate its 10th birthday. Never mind that the vast majority of people who own a computer have enough loose change in their glove compartments to buy an ice-cream cone. The lure of something for nothing is incredible in our society, even when it doesn't make any actual financial sense.

Frank LaRosa

#### CORRECTION

Seapine's QA Wizard costs US\$2,995 per user for each dedicated license and \$3,995 for each floating license. A Runtime Edition costs \$995 for a dedicated license and \$1,595 for a floating license. Seapine's SQA suite costs \$3,495 for a dedicated license and \$4,995 for a floating license. The prices were given incorrectly in a story in the March 1 issue.

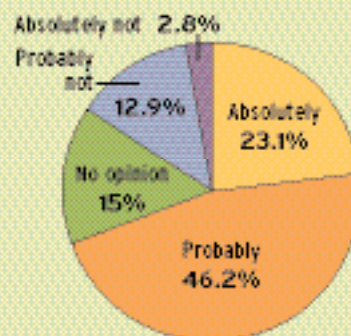
## Are Print Ads A Good Source of Information?

Do you read the ads in this and other software development publications, or do you cruise right by them? A recent study by Evans Data showed that not only do developers like print ads, but an overwhelming majority consider what they read to be good and useful information.

The report, which was part of Evans' Developer Marketing Patterns study published earlier this year, found that nearly 70 percent of the 394 respondents view print ads as a credible means of obtaining information they can consume in their own way and in their own time.

In addition, print ads are persistent, much more so than online banner ads and other forms of advertising popular today, the report said. Print ads are often passed from one person to another, can be torn out, marked and saved.

Unusual for such reports, Evans goes as far as to suggest that vendors avoid the temptation to cancel print-ad campaigns in favor of less-expensive strategies, and also to avoid use of misleading information or hyperbole in print. "When developers think of an ad as informative, that product will have gained a true advantage," the report stated.



Source: Evans Data Corp. [www.evansdata.com](http://www.evansdata.com)

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# Arise, Sir William!

"Are you planning on going to Bill's knighting ceremony?" came the voice over the phone. "Buckingham Palace is being a pain about nailing down the guest list. We explained that we'd be happy to cover the overages on the open bar, but they're all 'Security this. Security that.'"

"What time is it?" I asked, groggily retrieving my glasses from the nightstand and peering at the phone. According to my Caller ID screen, the call was coming either from Microsoft's PR firm or from a prankster named Ed Waggener—curse the resolution of Caller ID!

The answer was immediate, loud and with not entirely believable enthusiasm: "Why it's 9 a.m.! Start of the workday!" And then, in a hushed tone, the caller explained, "We've switched to Greenwich Mean Time. The entire company. They say it's to make Outlook appointments work correctly, but just between you and me, ever since Bill got told about the knighthood, he's gone a little Anglo-loco. It's queuing up for meat pies in the commissaries, soccer—I mean football—games during lunch in the predawn light, and it's not like it's an official rule, but everyone knows: No bowler hat, no raise."

"Well, to answer your question, no. I wasn't planning on attending," I said.

"Becks and Posh will be there."

"I have no idea what that means. Besides, there's no way I can justify the expense of flying over there."

"Oh, we're chartering planes! From Sir Richard Branson! He and Bill get along like kippers and toast!"

And so it came that I found myself somewhere above the Greenland ice cap in a 777 painted with a Union Jack and dubbed for the occasion "The Spirit of Domination." Unable to sleep, I was wandering about the galley looking for something to read, when who should walk in but soon-to-be-Sir William, himself. "Hi, Bill! Gee, I had no idea you were even on this plane!"

"I'm busy getting ready. Lots of work." He looked around guiltily: "I'm supposed to be fasting, but I figure airplane food doesn't count."

He snagged a tray of chicken Kiev, hid some packets of peanuts under his raiments of snow-white samite and disappeared back through the First Class curtain.

The next time I saw him was at the ceremony itself. I was disappointed to learn that to accommodate the crowd, the

ceremony had been moved from Buckingham Palace to the Millennium Dome (which the British politely renamed "Dome: XP Home Edition" for the day). Worse, I ended up not being able to sit in the area reserved for press because I got caught behind the Longhorn team, who showed up wearing full-plate armor and subsequently caused massive delays at the metal detectors.

"Massive delays from Longhorn? Hah! It figures," scoffed the fellow beside me when I finally squirmed into an empty spot in the bleachers.

"Larry Ellison!" I exclaimed. "What are you doing here?"

"Sales call. I've got to get some showcase accounts for PeopleSoft. The BBC's thinking about going with SAP. Can you believe it? Collaborating with the Germans!"

"I'm not really sure—"

"From the French you'd expect this sort of behavior. But from the—oh, they're finally getting started."

I've never been to another knighting ceremony, so I'm not sure if the lasers and re-creation of the Battle of Britain using remote-control model airplanes are traditional. And as predictable as it may seem in retrospect, when the crowd was chanting along to "We Will Rock You," and the Queen appeared in a cloud of

dry-ice smoke, the place went nuts. Or bonkers. Or was right chuffed to bits. Something like that.

The knighting itself was a little anticlimactic. We couldn't hear the words to the ceremony, and we were all understandably frustrated. But I still think it was highly inappropriate that when the Queen raised the sword above Bill's head, Ellison shouted out: "Do it!" It got a laugh from the crowd, but I noticed that for the rest of my trip, wherever I walked, I was accompanied by the chirping sounds of closed-circuit cameras panning to follow me.

After the ceremony, I was approached by a tall woman wearing a bowler hat. Since she was using a Blackberry, and all Microsoft employees are required to swear a blood oath to use only Audiovox Smartphones, I deduced that she was a Waggener Edstrom employee.

She greeted me enthusiastically. "Are you coming to the after-party at the Tower? Posh and Becks will be there!"

"I still don't know what that means. And plus, I have to write this up for my column and get it in."

"Brilliant!" she enthused. "What issue will it be in?"

I thought about it. "Well, I guess this column's for the April 1 issue." ■

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at [www.knowing.net](http://www.knowing.net).

## Windows & .NET Watch



Larry O'Brien

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# Java Annotations

Java 5's "annotation" feature is a welcome addition to the language. Unfortunately, the implementation is worse than it needs to be, largely, I believe, because of a lack of openness in the Java Community Process.

Annotations replace dubious tagging idioms in your code. The classic example of this problem is the `get-set` idiom required originally by the JavaBeans spec and now endemic. Nobody ever intended for these getters and setters to be called by anything other than a UI-building tool. They were just a way of annotating the fact that an object exposed a property to an outside tool (which, in this case, uses the information to build a "property sheet").

These particular getter/setter methods exist solely to provide information for the external tool. They should not be called from normal code. Another example of a flawed tagging mechanism is the `Serializable` interface, which tells the compiler (and JVM) to treat the annotated object specially. `Serializable` has no methods, so implementing it is nonsensical on its face.

An official annotation mechanism lets you leave notes for the compiler or runtime system without resorting to dubious idioms. For example, you could use

```
private @property Color backgroundColor;
to indicate that a layout tool should put a
Background Color property into its
property sheet. No getters and setters
are required. By the same token, a per-
sistence framework could tag a field
with @persistent instead of using get-set.
Other applications abound: You could
precede a class definition with
an @remote annotation to
indicate that it would be used
remotely via RMI. No need
for a Remote interface or mag-
ic exceptions; the compiler
provides the infrastructure
for you. @precondition and
@postcondition annotations
can tell a compiler to auto-
matically build regression
tests for you. You get the idea.
```

Though annotations are wonderful, the mechanisms used to implement them in Java are not. For example, the syntax used to describe an annotation derives, inappropriately, from that of an interface definition. You might define an annotation that documents a known bug as follows: `@Bug(id=1234, synopsis="description of behavior")`.

The associated `declaration` actually uses the `interface` keyword, and specifies the `id` and `synopsis` arguments as if they were

methods of an interface named `Bug`, which is just plain weird. This syntax renders the definition too abstruse, and discourages people from using the feature.

Though the syntax is annoying, the hoops you have to jump through to figure out how to use an annotation are unacceptable. There's one exception: It's

easy to get a list of annotated fields and methods using introspection APIs of the `Class` class. Annotations are most useful when handled by the compiler, however, and the mechanism for doing that (the "apt" tool and associated interfaces that you have to implement) is overcomplicated and underdocumented.

The Java Community Process is the main culprit. The JCP doesn't require an open process, and the Annotations (JSR 250) group was tightly shuttered, not letting outsiders see the proposed spec until it was too late to make any suggestions or changes that might make the technology workable.

Even worse, closed specifications encourage bad (or nonexistent) documentation. Tight groups working in isolation don't write much down. The group members know the material, and they

don't have to explain things to outsiders.

In the current case, this lack of written documentation was never corrected. The actual specification is scattered throughout the Java Language Specification, and is nowhere presented in a coherent form. Of the two documents provided in the installed Java documentation, one is barely adequate for describing how to use annotations in a simplistic way, and the other is an inadequate explanation of the apt tool required to process annotations.

It's just not possible to understand how to create your own annotations (and the associated processors) simply by reading. A lot of trial-and-error experimentation is required as well. Learning a new feature that's integral to the language shouldn't be this hard. The complete source code for even one nontrivial example would help, but there's nothing. The lack of a comprehensive example also sets off warning bells. How can you judge the quality of an API if you've never created an application using that API?

Annotations not only clean up your code, but also make it easier to write and maintain. They eliminate unnecessary complexity and hide details that shouldn't be visible. They're difficult to learn, but you should learn them anyway. ■

*Allen Holub is an architect, consultant and instructor in C/C++, Java and OO Design. Reach him at [www.holub.com](http://www.holub.com).*

## Java Watch



# Three Good, Free C++ Libraries

In my last column, I discussed an important collection of functions known collectively as the Jakarta Commons. It's an important resource for Java developers who did not want to reinvent the wheel by writing code that should, by all rights, be somewhere in the Java APIs. The Jakarta Commons has been widely tested in high-profile projects, so it can be viewed as a dependable addition to the Java armory.

There are a few C/C++ libraries that are similarly enormously useful, but under-recognized. I will look at three of them very briefly. All are open-source products and available at no cost. And like the Jakarta Commons, they have been extensively tested in the field.

**Netscape Portable Runtime** (NSPR) is available at [www.mozilla.org/projects/nspr/index.html](http://www.mozilla.org/projects/nspr/index.html). I touched on this library in my previous column. It was developed for internal use by Netscape (and then by iPlanet). It's a portable runtime (compatible with most releases of Linux, Mac OS, Unix and Windows) that focuses on non-GUI functions.

In its original design, NSPR was intended to provide the functionality on top of which a JVM could be constructed. As such, it emphasizes threads (by providing a unified model for the functionality in Win32 threading and Linux/Unix

Pthreads), thread synchronization (which keys off C. A. R. Hoare's proposal of using monitors. It offers mutual exclusion through mutexes and notification through condition variables. A few other functions make this a reasonable subset of the panoply of synchronization techniques), network I/O, time measurement and memory allocation.

In these latter areas, NSPR sometimes provides wrappers to existing APIs and other times provides the complete function. This approach means that whatever the platform, the NSPR-based code will run the same.

One controversial aspect of NSPR is the license. It is governed by the Netscape Public License ([www.mozilla.org/MPL](http://www.mozilla.org/MPL)), which basically gives you the broad ability to use the product as you want, except that if you modify the library in any way, you must give that code back to Mozilla and make it open source. However, if you plan to use the library as it is, this should not be much of a limitation. Consult the actual license before making your own determination.

The **Apache Portable Runtime** (APR) is a C library that provides fundamental functions in the Apache Web

server. It is also used in the Tomcat container and the Subversion source code management project. While NSPR has been stable for a long time, APR 1.1 is just settling into a stable phase.

Like NSPR, APR is portable, although to a larger set of platforms: Win32, Linux/Unix, NetWare, BeOS, OS/2 and Mac OS X. The core library is a wide-ranging group of functions that includes collections, file I/O, memory management, memory-mapped files, threads and so on. A distinguishing feature is APR's use of memory pools, which are preallocated regions of memory from which blocks are sawed off as needed. The idea behind these pools is to have an efficient way of allocating and reclaiming memory without the erratic delays imposed by garbage collection.

In addition to this core, there is a second piece, called APR Utilities, which contains additional routines for databases, dates, encryption and XML, among others. The database functions are the ones that currently are evolving the most. Both parts of the APR can be downloaded from [apr.apache.org](http://apr.apache.org). Like all software from the Apache Software Foundation, APR enjoys a very lenient license that allows

you to do just about anything with it, except claim it's yours, make guarantees on its behalf, or claim your product is endorsed by Apache. Again, though, check the license for yourself.

If you're building at the infrastructure layer, you might want to look at the **Adaptive Communication Environment** (ACE), at [www.cs.wustl.edu/~schmidt/ACE.html](http://www.cs.wustl.edu/~schmidt/ACE.html), which is a free, open-source C++ toolkit for programming high-performance and real-time communication services. It eases development of OO network services that rely on interprocess communication, event demultiplexing, explicit dynamic linking, and concurrency. These are tasks for which there is little commonly available support and which few programmers want to tackle alone. Curiously, ACE is the only one of these libraries that enjoys commercial tech support from third parties.

While the component reuse promised by C++ proved to be a chimera, and the hoped-for market in off-the-shelf objects never materialized, it is clear that some products from the open-source community are filling in the gaps remarkably well. As we have seen in these products, there are sufficient high-quality, portable, free libraries that a lot of the low-level code cutting necessary in C++ can be eliminated. ■

*Andrew Binstock is the principal analyst at Pacific Data Works.*

## Integration Watch





# Rumbaugh on a Roll

The discussion with Jim Rumbaugh began with the IBM engineer summarizing the keynote he delivered at last month's SD West conference in Santa Clara: As businesses become more distributed, they need to move from a monolithic software development model to a component business model. Loosely coupled components in a service-oriented architecture provide companies with the flexibility they need to respond to rapidly changing business landscapes.

I dutifully jotted down some notes and thought to myself that there certainly was nothing groundbreaking here—I've heard the same spiel from no fewer than a dozen software vendors and analysts over the past year and a half. Great, I thought...no column!

Then something wonderful happened: The conversation turned to the discipline of software development as a true engineering profession. I told Jim that from where I sit, there are two camps—those that want to see software developers certified as competent in a number of scientific areas, adhering to a standard development process, and those that believe development is more of an art form than a scientific discipline. In short order, he made it clear which side of the fence he sits behind.

"We've got to get out of the cowboy mentality," he began. "You don't have to be rigid or dogmatic, but you need to take the profession seriously. If you're constructing apps for large industries, it's engineering. It's not the starving

artist up in a garret in 'La Boheme.' That's bull---.

"There are a lot of crybabies who want it how it was. But those days are gone, and they are not coming back," he continued.

Software engineers are creative people, Rumbaugh noted, but they want to get useful work done. They don't feel

## Industry Watch



the need to reinvent things; they want to work on new things. "Hackers, or cowboys, put their effort in the wrong place," he said. "You can't put your energy into things that don't matter to the customer," even if makes the job of creating the software more satisfying to a developer.

Rumbaugh said software engineers are expected to have a certain core of knowledge about algorithms, data structure theory and architecture, among other areas. "Things have gotten bigger. People need to work together. You can't do that without rules and processes or there's anarchy."

He cited the movie business as an example, pointing to the lengthy credit scrolls at the end of animated or computer-generated features. "It's a very disciplined business. Time is money. You don't keep the crew sitting around without pissing off the director. There are real processes in place."

Automating as many areas of development as possible is the key to keeping developers creative. "I don't enjoy spending my effort on dog work," Rumbaugh said. "I want to automate everything I can to save my energy for solving

the hard problems. I like automated tools that help me get my job done faster. I use spreadsheets for adding columns of numbers. It's not that I can't add; I don't feel I need to prove that over and over again."

This brought us back to the original topic of his keynote: the creation of service-oriented architectures that allow reuse and flexibility. "You could build an SOA by hand, but as time goes on, you'd want to automate much of that," he said.

A useful skill set within those SOAs is modeling, yet Rumbaugh, one of the creators of the Unified Modeling Language, still scratches his head over why there is so much resistance to modeling in the developer community. "Maybe we have to take the blame for presenting [modeling tools] as magic bullets. Maybe the problem is the legacy of the '80s, with high-handed tools that didn't really do much. People only use tools if they provide value. SOAs and MDA [Model-Driven Architecture] are evolving. It's not all or nothing."

When I reminded him that none of the ideas he was putting forth was particularly new, he agreed. "In one sense, these are not new ideas. They've been presented for years and years. It's like the ancient prophets telling people to change their ways. No one listened."

But as for component-based development and loose coupling of services, he said the technology now exists to make it a reality. "Interconnectivity is now an expectation. You can expect to connect anything on the planet to anything else on the planet. The infrastructure for this wasn't there 10 years ago, and the machine power wasn't there. Now it's all in place." ■

David Rubinstein is editor of SD Times.

## BUSINESS BRIEFS

Through a joint agreement, **LogicLibrary** will make **TopCoder Software's** component catalog available to users of the Logidex asset management solution, the companies announced last month. The goal is to ease the reuse of components in building composite applications within a service-oriented architecture, according to Al Himler, vice president of product management and marketing at LogicLibrary. Logidex already comes with J2EE patterns, .NET building blocks and components for the Federal Enterprise Architecture, covering analysis, security, data management and other areas. The TopCoder assets were to become available to joint customers last month. Dave Tanacea, TopCoder's president, said his company has written an interface to automate the uploading of new assets into the Logidex repository. "We will continue to make the integration of products seamless," he said. . . . **TIBCO Software** has signed a strategic integration and joint marketing agreement with **Protiviti**, an internal audit and risk consulting firm that brings Protiviti's Sarbanes-Oxley portal application together with TIBCO's Staffware process management suite. The solution will help companies document, test and monitor their internal controls to ensure they are in compliance with the act. . . . **Digital Evolution** has changed its name to **SOA Software** and announced the acquisition of **ThoughtDigital** of New York, which does service-oriented architecture consulting and sells a messaging product for SOA. Terms of the sale, which was made public March 15, were not disclosed. ThoughtDigital employs approximately 30 people. . . . Software configuration management solution provider **AccuRev** announced a US\$2 million round of funding, led by **Commonwealth Capital** of

Massachusetts. Stephen McCormack of Commonwealth Capital joins the company's board of directors, as does Will Herman, who has held management posts at a number of technology companies. AccuRev said its sales rose 70 percent in 2004, but as a privately held company, it did not offer revenue or earnings figures. The company plans to double its staff this year and to make significant upgrades to its flagship SCM product, also called AccuRev. . . . Software development automation solution start-up **Codefast** has raised US\$6.5 million in venture funding, led by **Foundation Capital** and **Trinity Ventures**. Codefast, founded in 2004, believes it has a new approach to dealing with the problems of implementing software development automation processes. The technology, now called the Codefast Software Lifecycle Automation Solution, came out of a Canadian government research project. The company's CEO is Nick Berens, former senior vice president of corporate development at Rational Software. . . . Colorado-based **OpenLogic**, which provides software and services for companies to create their own custom open-source stacks, has received US\$4 million in capital from **Appian Ventures**, **Red Rock Ventures**, **Highway 12 Ventures** and **Village Ventures**. OpenLogic's BlueGlue Open Source Infrastructure Management Suite automates the installation, configuration, integration, test and maintenance of stacks built from more than 100 leading open-source projects. OpenLogic has added industry veterans to its board of directors. Doug Barre, most recently COO at Borland and formerly an SVP at Compuware, will be chairman, and Rob Balgley, formerly CEO of IM and collaboration software vendor Jabber, joins as a member. ■

## CALENDAR OF EVENTS

<b>USENIX</b> Anaheim THE USENIX ASSOCIATION www.usenix.org/events/usenix05	April 10-15
<b>Software Security Summit</b> San Diego BZ MEDIA www.S-3con.com	April 12-14
<b>Gartner Application Integration &amp; Web Services Summit</b> Los Angeles GARTNER www4.gartner.com/2_events/conferences/april4.jsp	April 18-20
<b>MySQL Users Conference</b> Santa Clara MYSQL AND O'REILLY MEDIA www.mysqluc.com	April 18-21
<b>Linux on Wall Street</b> New York FLAGG MANAGEMENT & LIGHTHOUSE PARTNERS www.linuxonwallstreet.com	April 20
<b>WinHEC</b> Seattle MICROSOFT www.microsoft.com/whdc/winhec	April 25-27
<b>Windows Driver DevCon</b> Seattle MICROSOFT www.microsoft.com/whdc/driverdevcon	April 25-28
<b>ASNApalooza (RPG Conference)</b> San Antonio ASNA palooza.asna.com	April 27-29
<b>Microsoft Mobile &amp; Embedded DevCon</b> Las Vegas MICROSOFT www.mecdc2005.com	May 9-12
<b>Gartner Symposium/ITxpo</b> San Francisco GARTNER www4.gartner.com/2_events/symposium/2005/spg7.jsp	May 15-19
<b>StarEast Software Testing Conference</b> Orlando, Fla. SOFTWARE QUALITY ENGINEERING www.sqe.com/stareast	May 16-20
<b>Enterprise Architecture Summit</b> Key Biscayne, Fla. FAWCETTE TECHNICAL PUBLICATIONS www.ftponline.com/conferences/eas/2005	May 22-24
<b>Wind River 2005 Worldwide User Conference</b> Orlando, Fla. WIND RIVER www.windriverevents.com/userconference05	May 22-25
<b>IBM Rational Software Development Conference</b> Las Vegas IBM www-306.ibm.com/software/rational/events/rsdc2005	May 22-26
<b>IDUG 2005</b> Denver INTERNATIONAL DB2 USERS GROUP conferences.idug.org/america/2005	May 22-26

For a more complete calendar of U.S. software development events, see [www.bzmedia.com/calendar](http://www.bzmedia.com/calendar). Information is subject to change. Send news about upcoming events to [events@bzmedia.com](mailto:events@bzmedia.com).



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